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THE UTAH
AGRICULTURAL COLLEGE.

Announcement

—OF ITS—

OPENING YEAR.

Learning and Labor.

LIBRARY

OF THE

University of Illinois.

CLASS.

BOOK.

VOLUME.

C

U+H

1890-91,
'92-93, '94-97

Accession No.



(182)
#3
THE ORGANIZATION

—AND—

Course of Instruction

—OF THE—

Agricultural College of Utah.

LOGAN, UTAH,

1890-91.

CALENDAR FOR 1890--91.

First Term Opens.....Tuesday, September 2, 1890
First Term Closes.....Tuesday, December 23, 1890
Second Term Opens,.....Tuesday, January 6, 1891
Second Term Closes,.....Thursday, March 19, 1891
Third Term Opens,.....Tuesday, March 24, 1891
Third Term Closes,.....Thursday, June 4, 1891

DEDICATION EXERCISES.

On Thursday September 4th, the College will be dedicated to education. Distinguished public men of the Territory will be present and deliver addresses on the occasion.

BOARD OF TRUSTEES.

WILLIAM S. McCORNICK.....	Salt Lake City
WILLIAM N. BROWN.....	Provo
CHRISTIAN F. OLSEN.....	Hyrum
ROBERT W. CROSS.....	Ogden
MELVIN B. SOWLES.....	Salt Lake City
JOHN E. HILLS.....	Provo
JAMES T. HAMMOND.....	Logan

OFFICERS OF THE BOARD.

WILLIAM S. McCORNICK.....	President
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H. E. HATCH.....	Treasurer

FACULTY.

ARRANGED IN ORDER OF SENIORITY OF APPOINTMENT.

JEREMIAH W. SANBORN, B. S., PRESIDENT.

Professor of Agriculture.

EVERT S. RICHMAN, M. S. A.

Professor of Horticulture and Botany.

WILLIAM P. CUTTER, B. S.

Professor of Chemistry.

ABBIE L. MARLATT, B. Sc.

Professor of Domestic Economy.

Professor of Mechanical Engineering.

Professor of English.

Professor of Military Science.

ALONZO A. MILLS, B. Sc.

Farm Superintendent.

NOTE:—The chairs of English, Mechanical Engineering and Mathematics were not filled at the time this announcement went to press, but negotiations were nearly completed with specialists for each of these chairs.

The chairs of Physics, Geology, Veterinary Science, Zoology, Civil Engineering, and other chairs will be filled by specialists as they are reached in the courses of instruction.

EXPERIMENT STATION ORGANIZATION.

BOARD OF CONTROL,

The Board of Trustees of the College.

STATION STAFF.

JEREMIAH W. SANBORN, B. S.....	Director
EVERT S. RICHMAN, M. S. A..	Horticulturist and Entomologist
WILLIAM P. CUTTER, B. S.....	Chemist
ALONZO A. MILLS, B. Sc.....	Supt. of Experiment Work
JOHN ^W R WALKER,.....	Clerk and Stenographer
H. E. HATCH,.....	Treasurer

HISTORICAL STATEMENT.

The Agricultural College of Utah was organized by an act of the Territorial Legislature, approved March 8th, 1888, accepting the provisions of an act of Congress, introduced by Hon. Justin S. Morrill of Vermont, and made a law July 2, 1862.

The purposes of Congress are seen in the following quotations from the National law: "And the interest of which shall be inviolably appropriated by each state, which may take and claim the benefit of this act, to the endowment, support and maintenance of at least one college, where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to Agriculture and the mechanic arts * * * in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

THE PURPOSE OF THESE COLLEGES.

The organic law founding these Colleges names agriculture first. This fact, coupled with the further fact that agriculture is the basic industry, quite properly determined most of the States, in giving name to these new institutions of learning, to fix upon that of Agricultural College.

The evident intention of Congress to give prominence to agricultural instruction at these institutions, and the transcendent importance of farming among the industries, have led the masses to assume that teaching agriculture as an art is the supreme, if not the only function of these institutions.

This false view has led to much unfortunate misunderstanding that has been detrimental to both the colleges and those in whose interest they were established. At the threshold of this

new college existence it is desirable that its legitimate functions be clearly understood by those for whom it was most wisely and generously founded.

The law states the mission of these Colleges to be the teaching of "such branches of learning as relate to agriculture and the mechanic arts." Something more than manual practice was intended by the law makers. The foundation for broad and comprehensive reasoning was to be laid by these industrial schools. All that science and learning can do to increase the manual skill or to widen the field of vision of the industrialist, either in giving deftness or direction to the hand, or in the substitution for it, of the physical and more productive forces through the application of increased intelligence, comes within the scope of the law. Indeed, a wider purpose came within the purview of the statutes, as witnessed in the following quotation from them: "In order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life." The benefits of the law were to be extended beyond farmers and mechanics to those of the several "pursuits and professions of life," and for all of the industrial classes beyond the making of the more expert industrialist to his liberal education as a man and a citizen. There is to-day a keen struggle on the part of the nations for supremacy in the marts of the world. This has been brought about by the marvelous development of the arts within the past thirty years, especially by the perfection of steam transportation by land and sea, whereby the nations of the world have become one commercial neighborhood. Congress recognized, in the provisions of the law, the fact that the intelligence of the industrial classes is the measure of the productive powers of nations, and thus sought to prepare this nation for industrial success. Congress further recognized the fact that more and more the honor, wealth and stability of the nation rests in the keeping of the industrial classes, known as the "great middle classes." From their ranks have risen those to whom the country has committed its interests, and to whom it will, in an increased degree, commit them in the future. Agitation and combination have brought about within a decade a marvelous increase of the direct power of these industrial classes. No fact has been more significant in the growth of this power than the increased conservatism with which it has been used. More intelligence has distinguished the movement than heretofore. A liberal education for the industrial classes will de-

velop not only stronger and wiser, but more conservative men for their leadership.

AN EDUCATIONAL DEPARTURE.

On emerging from the dark ages the world had no literature from which to draw knowledge and inspiration, save that of the ancient civilizations of Greece and of Rome. This only source of information and culture became the main instruction of the schools, and of course the fashionable instruction, three centuries ago. Despite the superior civilization of to-day, with its broader culture, and despite the new world of thought and action—the outgrowth of sciences unknown to the narrower vision of the ancients—the study of ancient literature remains, through the force of custom, the central work of classical colleges. Herbert Spencer, alluding to classical education says: “Men dress their children’s minds as they do their bodies, in the prevailing fashion.” Congress gave to the industrial classes, who could not, would not, or did not care to afford a classical education, opportunity to inform themselves of the civilization, of the varied and deeply interesting natural world of the physical, controlling and productive forces surrounding them and daily reacting upon their destinies. The control of natural agencies has vastly multiplied the productive powers of man. This widening power has broadened and is still broadening man. These colleges which seek to extend knowledge of the applied sciences, may therefore be looked upon, in their benign influence on humanity, as the most important higher educational movements of all time.

COLLEGE POLICY.

To the full extent of its resources, the College will carry out the broad policy of its founders. First and prominently, it “will teach such branches of learning as relate to agriculture and the mechanic arts.” The former being in the thought of Socrates, the mother and nurse of all other industries, will receive special attention. This Department will be made all that the people of Utah will support, not by money alone, but by the attendance of their sons and daughters. (The special consideration of this and other departments will be found under appropriate heads.) The prominence given to the De-

partment of Agriculture will give rise to no jealousies, as the character of the agriculture of a country is the measure of the prosperity of other industries, and of a nation's wealth and culture.

The wealth and variety of Utah's mineral resources adapted to the arts, are such that the College will fall far short of its duty if it does not give a zealous and earnest attention to mechanic arts and to civil engineering. This work will be extended so as to embrace mining and irrigation engineering.

The young women of the Territory attending the College will be put on an equal footing with the young men in obtaining a special education for their sphere of life.

A review of the College courses, which will be found on following pages, shows that the College authorities have not forgotten that the man is before the industrialist. The technical work will be accompanied by those studies best calculated to impart that information which the average citizen now finds most useful and pleasurable.

For more detailed information regarding the proposed work of the College, the reader is referred to information given under "Courses of Study."

RESOURCES OF THE COLLEGE.

Congress provided "that there be granted to the several States, for the purposes hereinafter mentioned, an amount of public land to be appropriated to each State, a quantity equal to 30,000 acres for each Senator and Representative in Congress, to which the States are respectively entitled." The law provides for the sale of these lands by the States without cost to the funds, and says: "so that the entire proceeds of the sale of said lands shall be applied without any diminution whatever to the purposes hereinafter mentioned." After defining the purposes of the grant, which have already been discussed, and after providing for the safe investment of the funds derived from the sale, the law says in Section 5:

The grant of land and landscrip hereby authorized, shall be made on the following conditions, to which, as well as to the provisions hereinbefore contained, the previous assent of the several States shall be signified by legislative acts.

First. If any portion of the fund invested as provided by the foregoing section, or any portion of the interest thereon shall, by any action or contingency be diminished or lost, it shall be replaced by the State to which it belongs; so that the capital of the fund shall remain forever undiminished, and the annual interest shall be regularly applied with-

out diminution to the purposes mentioned in the fourth section of this act, except that a sum not exceeding ten per centum upon the amount received by any State under the provisions of this act, may be expended for the purchase of lands for sites or experimental farms, whenever authorized by the respective legislatures of said States.

Second. No portion of said fund nor the interest thereon shall be applied directly or indirectly, under any pretense whatever, to the purchase, erection, preservation or repair of any building or buildings."

On the admission of Utah to statehood, the College will come into possession of some 120,000 acres of land, the funds derived from the sale of which, as it has been seen, Utah will be under obligation to perpetuate as a permanent fund for the maintenance of the College.

THE EXPERIMENT STATION.

By an act of Congress passed on March 2d, 1887, \$15,000, which it was expected would become an annual appropriation, was appropriated for experimental work, to be conducted in connection with the agricultural colleges. The first appropriation, or that of 1862, was for the exclusive purpose of teaching or imparting information already acquired, and to all classes of industrialists. The second appropriation, by law, is to be wholly devoted to the acquisition of information, or is wholly for research. This original research is to be in the field of agriculture, and is not for students alone, but is primarily for the farmer. The Congressional law defines quite fully the proposed line of research. Briefly stated the investigation intended may legitimately cover any question relating to economic agriculture.

Under the "Course in Agriculture" the brief presentation of the work now going forward at this station, will illustrate the purpose of the law.

RELATIONS OF UTAH TO THE COLLEGE.

In accepting the grant of Congress for founding of both the College and the Station, Utah pledged herself to carry out the purposes of Congress in good faith and accepted the obligation to equip and maintain the College, and to guard its funds.

The College is, then, a Territorial institution, fully under its control within its stipulations with Congress, and has Utah's pledge to support it.

It is unnecessary to quote the Territorial law in full. The following points of interest will be noted:

First. The law located the College in Cache County.

Second. \$25,000 were given to erect a college building and to purchase land.

Third. The Governor and Secretary of the Territory were made, with the Assessors of Cache, Davis, Utah, Salt Lake, and Sanpete Counties, ex-officio Trustees of the College. By a decision of the Supreme court, of a general character, it was held that the power of appointment is vested in the Governor and the Council, and not in the Legislature. The present Board of Trustees was appointed under this decision.

Fourth. The objects of the College were defined by the territorial law in the language of Congress already quoted. In the same manner the objects of the Experiment Station were defined. The Territory is in full accord with the terms of the Congressional grant.

Fifth. Section 10 is quite important and will be given in full. With this section the management is in most hearty accord. Positive assurance is hereby given to the public that there will be a faithful discharge of the duties devolving upon those in authority, touching this portion of the law.

SEC. 10. In the appointment of professors, instructors and other officers and assistants of said College, and in prescribing the studies and exercises thereof, and in every part of the management and government thereof, no partiality or preference shall be shown by the trustees to one sect or religious denomination over another; nor shall anything sectarian be taught therein; and persons engaged in conducting, governing, managing or controlling said College and its studies and exercises in all its parts, shall faithfully and impartially carry out the provisions of this act for the common good, irrespective of sects or parties, political or religious.

Sixth. The course of instruction "shall embrace the English language and literature, mathematics, civil engineering, agricultural chemistry, animal and vegetable anatomy and physiology; the veterinary art, entomology, geology and such other natural sciences as may be prescribed, technology, political, moral and household economy, horticulture, moral philosophy, history, bookkeeping, and especially the application of science and of the mechanical arts to practical agriculture in the field."

Seventh. The length of the course was made not less than nine months. Students must be, by law, fifteen years of age to enter the institution. This, doubtless, as in other states and at other colleges, means admittance to the collegiate course, and is not intended to bar younger students from any prelimi-

nary studies necessary to admit them to the full collegiate course.

LOCATION OF THE COLLEGE.

Logan and Cache county gave a farm of 100 acres and thereby secured its location. Logan is the capital city of Cache county, and in a commercial sense, of Cache valley. It is surpassed in wealth and population by only three cities of Utah, and in the beauty of its location by none. Cache valley is some sixty miles in length, twelve miles in width, and is completely surrounded by the Wasatch range of mountains. From the upper bench of the old lake formation, upon which the College and farm are located, can be seen, in the clear air of this inter-mountain region, the full expanse of the rich valley in which it is located throughout its entire length, while the uniquely corrugated mountain sides encircling the valley are seen in all their wealth of varied beauty. The College is located at the visual key of this unique and picturesque valley. The beauty of its location is probably unsurpassed by that of the location of any other college in the country.

COLLEGE EQUIPMENT.

One hundred feet square of the College building, constituting one of the wings, is now completed and ready for use. The frontispiece will show that it is a modern building of pleasing exterior. This wing includes eight lecture rooms, a chapel, rooms for domestic arts, and a light and roomy basement that will be used for the time being for mechanic arts.

The last Legislature gave the College, in addition to the sum necessary to equip the farm with buildings and appliances, and to pay a corps of instructors, \$9,000 for equipping the college building for its illustrative work, with a library, desks, cases and apparatus for teaching in the several courses. Students will, therefore, have the advantage of a modern and effective equipment for the first two years of the college existence.

Under the presentation of the several courses, will be set forth the advantages of each.

COLLEGE INSTRUCTION.

The existence of the Agricultural College of Utah rests upon the development of the sciences as unfolded in the immediate past. Its distinctive work will be, in addition to giving a liberal education, the teaching of these sciences, and the pointing out, as far as possible in school life, by actual manual exercise and by the use of apparatus and of materials and agencies used in the arts, their application to industrial life. This work evidently requires men of special experience and instruction. The instructors will all be specialists of a high order of attainment in their several fields of instruction. It is intended that the work undertaken at this College shall be well done and comparable with the better colleges of the country.

COLLEGE COURSES.

The College work will cover four distinctive lines of instruction, and three special courses.

1. Course in Agriculture.
2. Course in Domestic Arts.
3. Course in Mechanic Arts.
4. Course in Civil Engineering.

The special courses will be as follows:

1. Three years' course in Agriculture.
2. Course in Mining Engineering.
3. Irrigation Engineering.

If a demand is developed, a winter course of lectures in Agriculture will be given. This course will be for young farmers and other interested parties, and will cover from one to three months.

The courses in Mining and in Irrigation Engineering will be Post Graduate Courses of one year each.

PREPARATORY DEPARTMENT.

The state of development of our public schools seems to require, for a few years, a preparatory department of one year for the fitting of those students who are unable to pass an examination for entrance to the college courses. This, it is hoped, will be a temporary necessity.

COURSE IN AGRICULTURE AND SCIENCE.

It has been said by a great poet that "All nature is but art unknown to thee." This being so, agriculture is the art of arts, for it unceasingly deals with nature and is thereby brought daily into contact with life and the sciences related to life. In the management of soils and in the use of tools it comes in contact with physical and mechanical laws, and in the markets, with commercial and political laws. Very happily agriculture deals with more of the sciences than any other industry, thereby causing agricultural education to become more nearly a liberal education than that necessary to any other industry, or as it is often called, profession. Very nearly the round of natural sciences are involved, so that a well educated farmer is virtually liberally educated as a citizen.

In the following course of instruction very few studies are involved that are not an essential part of the education of a man best equipped to become the most successful farmer. It may well be termed a course in the applied sciences.

Heretofore agriculture has been without guiding laws. It has been a "rule of thumb" business. It is now rapidly becoming the most learned of the industries or professions. Of its profundity there can be no longer any doubt. The inherent fascination of its living forms and of its complex and intricately balanced laws will yet attract the best talent to it as the finest field for industrial gratification and for the development of the highest order of intellectual and physical manhood.

Statistical inquiry has shown that in the several countries of Europe the produce per acre is increased over the most illiterate countries by the ratio of the population that can read and write. The same fact is found to exist between the states of the Union. A single illustration of the general law will be given. In 1860, fifty-three per cent of the population of France and nearly all of the population of Germany, could read and write. In the former country the crops were 18.50 bushels per acre while the latter yielded 22.05 bushels. Germany has a poorer country for agriculture than France yet her yield is nearly twenty per cent more than that of France. She has far more Agricultural Colleges and Stations and erected them earlier than did France.

THE PREPARATORY CLASS.

The Preparatory Class continues for one year and fits students for the several courses of college studies.

FIRST YEAR.	SECOND YEAR.	THIRD YEAR.
Grammar. Arithmetic. Reading and Orthography. United States History. Military Drill.	Grammar. Arithmetic. Drawing. Declamations and Essays. Military Drill.	Grammar. Arithmetic. Physical Geography. Original Speeches. Military Drill.

MILITARY SCIENCE.

The United States details a West Point graduate to take charge of this department. As yet this officer has not been detailed but it is expected that he soon will be. The purpose of this special work is not that of educating students fully in the art or science of war but is intended to give them sufficient instruction to equip them for service in case of emergency.

It is of great value to the States and to the nation to have scattered throughout the country, men capable of drilling and organizing their neighbors for service.

COURSE IN AGRICULTURE.

FRESHMAN YEAR.

FIRST TERM.	SECOND TERM.	THIRD TERM.
Composition and Rhetoric. Higher Arithmetic. Physics. Shop work and Military Science.	English. Algebra. Physics. Practice in Physical Laboratory.	English Literature. Algebra 2. Trigonometry 3. Chemistry. Shop work and Military drill.

SOPHOMORE YEAR.

Horticulture. Chemistry. German or French. Horticultural work and Shop practice.	Horticulture. Agricultural Chemistry. German or French. Bookkeeping. Laboratory Practice in Chemistry.	Horticulture, Forestry and Bee-keeping German or French. Geometry 4. Botany 4. Industrials.
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Continued on next page.

JUNIOR YEAR.

FIRST TERM.	SECOND TERM.	THIRD TERM.
Agriculture. Botany. Mineralogy & Geology. Mechanical Drawing. Farm work.	Agriculture. Geology & Lithology. Botany. Physiology. Laboratory practice in Botany.	Agriculture. Zoology. Surveying 4. Entomology 4. Farm work.

SENIOR YEAR.

Agriculture. Veterinary Science. Logic 2½. Mental Science 2½. Farm work.	Veterinary Science 3. Agriculture 2. Political Economy. Astronomy. Laboratory work.	Agriculture. Veterinary Science. United States Constitution. Optional study.
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DEGREE.

All students who complete the course and pass a satisfactory examination will receive the degree of B. S. (Bachelor of Science.)

GENERAL NOTES ON ABOVE COURSE.

Those who enter college from the Preparatory Department will receive one year's drill in English Grammar, and one year more in English during the regular course. This time and the time devoted to Political Economy, Logic, Mental Science, History and the United States Constitution, coupled with the sciences and time devoted to the library, will so far develop the taste for that class of reading which informs and disciplines the mind for the proper discharge of effective citizenship, that the graduate of the course will become well equipped to enjoy the book of nature surrounding him, the society of man, and to represent the interest of the class that this course seeks to promote. It is said that the chances of a college graduate for high honors in the country are multiplied two-hundred fold by a collegiate training. The college does not seek to train statesmen but to fit young men taking this course for effective farmers and as representative citizens. It is well known that farmers have few representatives of their

class in National affairs and that their interests have never been effectively protected.

SHOP WORK.

About a year of time in daily exercises of one to two hours each will be devoted to work at the bench with wood and at the forge with iron. Skill in handling ordinary carpenters' tools and in common blacksmith work at the forge will be acquired that will excel that of ordinary workmen. Habits of accuracy and perfection in details of work will be acquired that will remain as a force that will color all of after life. The design is to acquaint young farmers with the manipulation of tools and with some of the principles involved, for their own use on the farm. This work has been found one of the most popular and useful labors of the courses in agriculture.

FARM AND HORTICULTURE WORK.

It will be observed that throughout the four years' course the laboratory practice in physics, botany, chemistry and veterinary science, military drill, shop work and in labor on the farm and on the horticultural grounds keeps students in daily exercise. This is found to be a potent way to retain a love for an active physical existence, which it is often claimed is lost during college life by the old system of education, while at the same time it secures health and vigor to the students.

The work on the farm and in the Horticultural Department, while largely for the purpose of illustration, and to gain familiarity with the methods pursued, is in part for physical culture. Young men desirous to work beyond the required time, will be compensated for their services when they are needed.

MEANS OF ILLUSTRATION.

LABORATORIES.—The Chemical, Physical, Botanical, Veterinary, Agricultural and Horticultural Laboratories and museums will contain \$2,500 worth of newly purchased means of illustrating the class room teachings. Already the College has secured from Prof. M. E. Jones, 800 species of the flora of Utah

for the Botanical Laboratory. The Chemical Laboratory of the Experiment Station will be equipped at a cost of \$2,000.

LIBRARY.—A library of some 1,500 volumes will be available for use.

HORTICULTURAL GROUNDS.—Twelve acres will be completely covered with products designed to illustrate school room teachings and for research. (See Experiment Station.)

EXPERIMENT STATION.

It has been noted that the Experiment Station is endowed by an annual gift from the Government of \$15,000, which sum is to be applied strictly to the purposes of research in the interest of farmers. This work is the most valuable work that could be carried forward for the purpose of school room illustration. The Station equipment consists of a model

FARM HOUSE. This house is new and modern in its conveniences. It contains a fine dairy room fitted up with modern dairy conveniences.

FARM BARN.—Nothing is hazarded in saying that no college barn in the country exceeds, indeed if any equals it, in its array of conveniences for labor saving.

CHEMICAL LABORATORY.—This is to be a fine building, fitted solely with reference to Station work.

THE FARM.—On the farm proper there are some three hundred plats laid out for investigation. These cover time of irrigation, amount of water to use, sub-irrigation, night versus day irrigation, method of fitting ground for irrigation and other irrigation trials. They include trial of varieties of wheat, corn, oats, barley, forage crops, mulching, drilling against broadcasting, method of tillage, time of tillage, depth of tillage, several methods of plowing, no tillage, depth of planting, distance of planting, time of sowing, amount to sow, selected seed, time of harvesting, chemical fertilizers methods of manuring, varieties of grass for hay, varieties of grass for pasture—to be tested by actual grazing trials, mixed grasses for pasture, several crop rotations and soil studies.

When the barn is completed a large series of feeding trials with cattle, sheep, horses and hogs will be entered upon. Other work is in view and will soon be entered upon.

HORTICULTURAL DEPARTMENT.—In this Department will be found a series of the most important economic trees that have

been introduced by the Station for test. One hundred varieties of apples, many of pears, peaches, plums, grapes, strawberries, raspberries, blackberries, potatoes, vegetables of the various sorts and a line of other work, are on trial.

CHEMICAL DEPARTMENT.—The Chemist of the Station will carry forward a large amount of chemical work in plant, and in animal life, on soils, etc.

It is believed that the Agricultural College of Utah is equipped for first class work and will compare favorably with similar institutions in other states.

The Bulletins of the Experiment Station will be sent free to any one asking for them.

PAPERS AND LECTURES.

A Reading Room will be well supplied with papers suited to the wants of the several departments.

Lectures by members of the Faculty and by distinguished speakers from abroad, will be given in the Chapel of the College.

THREE YEARS' COURSE IN AGRICULTURE.

FIRST YEAR.

Same as Preparatory year. (See Preparatory Course.)

SECOND YEAR.

FIRST TERM.	SECOND TERM.	THIRD TERM.
English. Agriculture. Physics. Shop and Farm work.	English. Agriculture 3. Geology & Lithology. Bookkeeping 3. Shop work.	Agriculture. Chemistry. Zoology 3. Botany 4. Farm work.

THIRD YEAR.

Horticulture. Agricultural Chemistry Veterinary Science. Botany. Horticultural work.	Horticulture. Veterinary Science. Agricultural Chemistry. Political Economy. Shop work.	Agriculture. Veterinary Science. Entomology 3. Trigonometry and Surveying. Horticultural work. Elocution.
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This work is intended for those who cannot or will not afford the expense of a full course. It is a business course in Agriculture. It is framed on the same plan that courses in law and medicine are, as a purely technical course, and is intended, as they are, to furnish economic or practical, or as it is known, technical information. English Grammar is made an exception, as is the first year of the course. The first year furnishes a small degree of preparatory fitting, without which no student would be prepared to study or learn in the field of agriculture, as its abstruse sciences require some preliminary training.

WINTER LECTURES ON AGRICULTURE.

As a preliminary trial or test of the public demand for such a course of lectures for farmers, a month's course of lectures will be inaugurated at the opening of the winter term in 1891, provided there are ten applications for admittance to the course. These lectures will be open to everybody free of charge, and without examination touching educational qualifications. The ground covered will be that alone of practical work, such as stock feeding, farm crops, breeding, tillage, diseases of animals, chemistry applied to agriculture, insects injurious to vegetation, horticultural topics, etc.

Application should be made two or more weeks in advance of the opening lectures.

No degree will be attached to either course, although a certificate stating the fact of honorable completion of the three years' course will be given.

COURSE IN DOMESTIC ARTS.

Except in the hours devoted to shop, farm or horticultural work, the course for young women will be the same as for young men in the four years' course of agriculture. There will be some fifteen terms of one lesson daily, wherein the course for young women will not run parallel with that of the young men. This time will be devoted to special work adapted to their sphere of life. Co-education is now very widely recognized in the higher as it has been in the lower schools. No adequate reason can be assigned for denying women a share in the benefits of this public bequest. Once admitted into the institution, their right to special consideration in making up the course of instruction is as clear as that of young men. For this reason, if for no other, special attention will be given to those branches of information in which young women require technical proficiency, and to those studies that tend to adorn life in the sphere in which they most move.

SPECIAL STUDIES FOR YOUNG WOMEN.

COOKING.—The chemistry, or science, and the art of cooking will be taught. Exercises in cooking in application of school room teachings will be a regular feature of the work. Not only will the students be required to cook, but to arrange the table for guests and to preside over it.

CUTTING AND SEWING.—Cutting and sewing will also receive special attention. The value of this art in householding is too apparent to need commenting upon.

DAIRYING.—Butter and cheese making is a fine art. Milk is one of the most complex and unstable compounds known in the whole range of farm life. In no other field of farm economy is the product so irregular and with results so unfortunate. The problems involved are very complex and interesting. Very decided attention will be given to this most important field of woman's general care. Fortunately, the more exacting work of the dairy now falls to other hands. While this is true, the necessity of mastery by woman of the philosophy

and art of butter making was never greater than now, wherever butter is made on the farm.

HYGIENE.—A special course of lectures will be given to the young women of this department.

BELLES-LETTRES.—A special course of instruction will be given the young women in what is known as polite literature, including elocution.

MUSIC AND PAINTING.—A competent instructor in Music and Painting will be employed, giving the opportunity to acquire these graces free of charge. They will not be compulsory studies, but will be encouraged for those who have the taste and talent for their acquisition. Other provisions will be made for those not desiring to devote their time to them.

FRENCH.—French will be taught the young women instead of the German of the regular Course in Agriculture. German has been placed in the Course in Agriculture, as Germany is the home of Agricultural Colleges and Experiment Stations. The German language is richer in agricultural literature than that of any other language, hence it is placed in the Course in Agriculture.

HORTICULTURE.—Horticulture has a fascination for all classes of our population. Man has an intuitive or inherent love of nature. Her living forms everywhere claim the admiration and almost the affection of every cultivated or refined man or woman. Horticultural and household plants are varied; are very plastic in our hands, and are either beautiful or useful. In either case they minister to our pleasures. Household plants and the farm or the village garden are always objects of interest and of importance to women, and often the source of physical health, inducing, as they do, frequency in the open air. This does not necessitate the added drudgery of physical work in the garden any further than pleasure may dictate.

The growing taste for this refined field of agriculture, warrants the devotion of some time on the part of the young women to the principles and practices of at least a restricted field in horticulture.

MILITARY DRILL FOR YOUNG WOMEN.

By an oversight the following remarks regarding Military Drill, were detached from the matter already given on the subject:

This Department of instruction has become very popular in college life. It takes the place in many colleges of Calisthenics, and is found to be a most valuable method of securing physical culture. It gives an erect carriage, ease and grace of bodily movement, and habits of discipline and order. The influence of military drill is soon visible on those taking it.

The marked advantage of this practice to young men has led several colleges to extend it to young women with the most happy results. The spear, light rifle, or some other light weapon is usually carried. The young women of this college will have the advantages of this feature of college instruction.

IMPORTANCE OF DOMESTIC ECONOMY.

Modern Household Economy and Home Keeping is rapidly broadening out into a wider field. Its plane of existence has been greatly elevated, and is still being lifted to a higher and wider sphere, well worthy of all the powers of woman. This department is based upon the belief that the home is a vital force in the development of broad culture and of a sound and noble social, moral, political and economic existence for man. It is believed that the science and art of Domestic Economy is a broad one in its social and economic phases, and requires talent of a high order. Certainly in no field is the power of refinement more potent and pleasurable. There is no other of equal importance.

This course will have the friendly care of those to whom it is committed.

COURSE IN MECHANICAL ENGINEERING.

The growth of modern industrial arts springs from recent development of the sciences. Their pursuit rests, then, upon a knowledge of all the laws involved. This implies a systematic study of related sciences. The value of general intelligence and of mechanical skill finds striking illustration in the marketing of American mechanical productions in India and other countries where labor is but one-twentieth of the rates paid here.

It is believed that the effect of a strong department of Mechanical Engineering will be, through its graduates, to stimulate the development of the mechanical industries in this Territory. The presence of masters of the science of mechanics and of men trained to a high order of skill in the art of mechanical construction, can but result in elevating the character of our mechanical industries.

The instruction in this school is in response to a popular demand for such a course, as witnessed wherever such a course has been organized. No department of instruction at industrial colleges is now as popular as that of mechanical engineering. As in the school of Agriculture and of Domestic Arts, skill in application will be acquired wherever the principles taught will admit of it. To this end Work Shops will be fitted up for work in Wood, for Forge Work, for Vice Work in Iron, for Molding, etc. Students will be given lessons in handling Engines, Boilers and other machinery. In addition to imparting skill in the manipulation of materials, instruction will be given in the underlying principles of the mechanical structures and trades involved. The object will be constantly kept in view, of training thinkers and not mere routine manipulators—men who will have constructive and inventive talent.

A principal for this department has not as yet been selected, so that it is not deemed best, until such selection is made, to lay down a rigid course. A master in this field will be secured, and an equipment furnished that will secure the objects sought. The following is an approximate outline of the work proposed:

COURSE OF INSTRUCTION.

FRESHMAN YEAR.

Practically the same as in the Course in Agriculture, save that special attention will be given to Shop Work.

SOPHOMORE YEAR.

The instruction will vary from the Course in Agriculture mainly in Shop Work and Drawing.

JUNIOR YEAR.

The work of this year will include two terms of Physics, including especial attention to Electricity and Magnetism, Trigonometry, Geometry, Geology and Lithology; three terms of Mechanical Drawing, Pattern Making and Molding, Vice Work in Iron and Steel, Principles of Mechanism and Heat, Analytical Mechanics, etc.

SENIOR YEAR.

Surveying and Sanitary Engineering, Analytical Mechanics, Applied Electricity, Mechanical Drawing, Metallurgy, Steam Engines and Boilers, Strength of Materials, Machine Designs, Experiment work in Engineering, Astronomy, Political Economy and other special work.

DEGREE GIVEN.

The degree of M. E. (Mechanical Engineer) will be given.

COURSE IN CIVIL ENGINEERING.

The purposes of this course need no explanation in a territory pre-eminently requiring the services of the Civil Engineer. The mining interests of Utah, the immense work to be done in irrigation engineering before the vast resources of water in the Territory are utilized, and the great work of a territory just ready to develop its varied resources, fully demand this course in an industrial college for its people.

FIRST YEAR.

The first and second years will run parallel with the Course in Mechanical Engineering.

THIRD YEAR.

The third year will contain more of Mathematics and less of Physics and Machine work and Designing, than the Course in Mechanical Engineering.

FOURTH YEAR.

The fourth year will include Surveying and Sanitary Engineering, Mechanical drawing, Analytical and Graphical Statics, Steam Engine, Stereotomy, Principles of Mechanics, Roads and Pavements, Engineering Designs, Mechanism of Engineering, Geodesy and other technical work; also Astronomy and Political Economy.

MINING AND IRRIGATION.

A year each will be given to Mining and Irrigation Engineering in addition to the regular Course in Engineering. The present wealth and the future prospects of Utah rest largely upon mining and irrigation. It is believed that this department of instruction can be made to serve the material interests of Utah to an eminent degree.

When we consider the vast debt due to engineering in countries where irrigation is far more nearly perfected than it is here, when we reflect upon the great opportunities for water storage, the great waste of water under the present system and the probable near approach of the time when the forces of nature will be used in raising and controlling irrigating waters, it is plainly the evident duty of the College to foster this science as far as it possibly can. The possible productive power of the water falling upon our water sheds it is believed, and probably justly so, is far greater than is ordinarily apprehended. The extensive mineral resources of the Territory will, in their future development, sustain a large and prosperous population. This population will call for the full resources of all of the land in our valleys. This in turn will stimulate the husbanding of the water resources.

This School seeks to educate men within its own borders who will be capable of developing this vital interest.

DEGREE FOR COURSE IN CIVIL ENGINEERING.

On the satisfactory completion of the course in Civil En-

gineering, the degree of C. E. (Civil Engineer) will be conferred.

TERMS OF ADMISSION.

All students admitted to the College must be fifteen years of age. This requirement will not be enforced for the Preparatory Department. Students must furnish for entrance to both the Preparatory Department and the College Courses, when required, evidence of good moral character.

COLLEGE CHARGES.

Tuition will be free.

Five dollars will be charged as an entrance fee for each year of the College Course. For a single term for irregular students the charge will be three dollars. This sum is in lieu of the charges ordinarily made at colleges for library and other fees, so that the Library, Museums, etc., will be free to the students.

In the Chemical Laboratory and Workshops the students will be charged for the cost of the materials actually used up by them in their exercises. This charge will of course be only for the terms when the materials are used. This sum will amount to only from \$2 to \$3 per term.

REQUIREMENTS AND DISCIPLINE.

Daily attendance at Chapel Exercises may be required. These exercises will be wholly devotional and completely unsectarian. It is expected that they will be conducted in part by members of each of the churches represented in Logan, but wholly as worshippers.

Students will be required to take four full studies, unless excused from them by the Faculty.

Prompt attention to all duties assigned to them will be required of each student. Gentlemanly deportment towards all with whom they come in contact, whether of the Faculty, fellow students or citizens, will be expected. Any failure in this direction will become a matter of record and of decided Faculty action when this aggregate reaches a given standard.

CLASS GRADES AND ABSENCES.

Class standing will be kept. Failure to attain 60 will be a failure to pass in the study involved.

Absences from class recitation or from any other assigned duty will become a matter of record. Excuses will be rendered for class absences to the Professor in charge of the class from which the student has been absent, and for absences from Chapel or other assigned duties of a general character, to the President.

EXAMINATIONS.

Examinations for admission to full College Course will cover Arithmetic, Elements of Grammar, Geography, and the elementary branches taught in our common schools.

Students passing in the Preparatory Department will be admitted to the College Courses without further examination.

CATALOGUES.

The College Catalogue will be sent to any one requesting a copy.

All Bulletins of experiment work performed at the Experiment Station will be forwarded free to any address desiring them.

DIRECTIONS TO STUDENTS.

1. Logan is reached over the Utah Northern R. R., which runs two trains each way daily.

2. New students will first present themselves for examination to the Professors of English and Mathematics. Examinations will occur on the first and second days of the opening of the term.

3. After passing examination, pay the entrance fee to the Treasurer and obtain his receipt for the same.

4. The Treasurer's receipt is taken to the Secretary of the Faculty, who will enter the name upon the College roll.

5. The Secretary will furnish the students a matriculation card. This card will be presented to the Professors of the several classes in which students desire to be enrolled. These teachers will place the name on their class rolls and give all further advice needed to enable the student to be properly prepared to start with his classes.

SPECIAL NOTICE.

The first two years of the college courses only, will be open this fall for admission of students.

It is assumed that very few, except those who have fitted for the last two years in this College by taking the first two years, will desire to enter for the final years of the college courses. If this assumption is correct, then it will be two years before the students of this College will be prepared for the concluding years of the College Course. When the students of the first and second years reach these last two years, a full corps of instructors and an equipment will be organized to carry them forward with their work.

TO INQUIRERS.

For further particulars address the Secretary or the President of the College.

Since the above was written Prof. J. M. Sholl, M. E., has accepted the Professorship of Mechanic Arts and of Mathematics.

The *Rural New Yorker*, of New York city, offers to pay the expenses, except clothing, of students in the college for certain services to be performed in securing subscriptions.

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The Agricultural College of Utah.

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—OF THE—

AGRICULTURAL COLLEGE

OF UTAH.

LOGAN, UTAH.

1892-3.

CALENDAR FOR 1892-3.

First Term Opens.....	Thursday, September 1, 1892.
First Term Closes.....	Thursday, December 22, 1892.
Second Term Opens.....	Tuesday, January 3, 1893.
Second Term Closes.....	Saturday, March 17, 1893.
Third Term Opens.....	Tuesday, March 20, 1893.
Third Term Closes.....	Friday, June 1, 1893.

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Elocutionist, and Librarian.

JAMES DRYDEN,

Assistant Instructor in Commercial Dep't.

E. J. ^aMcEWAN, A. M.,

Professor of English and Modern Languages.

Professor of Civil Engineering.

Biology.

Professor of Economics, Sociology and Mental and Moral Science.

Instructor in Sewing Department.

Instructor of Music.

Instructor of Dairying and Animal Husbandry.

HISTORICAL STATEMENT.

The Agricultural College of Utah was organized by an act of the Territorial Legislature, approved March 8th, 1888, accepting the provisions of an act of Congress introduced by Hon. Justin S. Morrill of Vermont, and made a law July 2, 1882. This act was supplemented by an act passed March 2, 1888, founding and endowing Agricultural Experiment Stations as departments of these Colleges and by a subsequent act passed August 1890 further endowing them. Under resources of the college found on page 9 further information in relation to these supplemental acts is given.

The purposes of Congress are seen in the following quotations from the National law: "And the interest of which shall be inviolably appropriated by each state, which may take and claim the benefit of this act, to the endowment, support and maintenance of at least one College, where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to Agriculture and the mechanic arts

* * * in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

THE PURPOSES OF THESE COLLEGES.

The organic law founding these Colleges names agriculture first. This fact, coupled with the further fact that agricult-

ure is the basic industry, quite properly determined most of the States, in giving name to these new institutions of learning, to fix upon that of Agricultural College.

The evident intention of Congress to give prominence to agricultural instruction at these institutions, and the transcendent importance of farming, have led the masses to assume that teaching agriculture as an art is the supreme, if not the only function of these institutions.

This false view has unfortunately led to much misunderstanding that has been detrimental both to the colleges and to those in whose interest they were established. At the threshold of this new college existence it is desirable that its legitimate functions be clearly understood by those for whom it was most wisely and generously founded.

The law makes the leading purpose of these Colleges the teaching of "such branches of learning as relate to agriculture and the mechanic arts." Something more than manual practice was intended by the law makers. The foundation for broad and comprehensive reasoning was to be laid by these industrial schools. All that science and learning can do to increase manual skill or to widen the field of vision of industrialists, either in giving deftness or direction to the hand, or in substitution for the hand of physical or more productive forces through the application of increased intelligence, comes within the scope of the law. Indeed, a wider purpose came within the purview of the statutes, as witnessed in the following quotation from them: "In order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life." The benefits of the law were to be extended beyond farmers and mechanics to those of the several "Pursuits and professions of life;" and for all the industrial classes the intent was to go beyond making the mere expert industrialist to his liberal education as a man and a citizen. There is to-day a keen struggle on the part of the nations for supremacy in the marts of the world. This competition has been developed within the past thirty years by the marvelous growth of the arts, especially by the perfection of steam transportation by land and by sea, whereby the nations of the world have become one commercial neighborhood. Congress recognized, in the provisions of the law the fact that the intelligence of the industrial classes is the measure of the productive powers of nations, and thus sought to prepare this nation for industrial success. Congress further recognized the fact that more and more the honor, wealth, and stability of the nation rest in the keeping of the industrial classes, known as

the "Great middle classes." From their ranks have risen those to whom the country has committed its interests, and to whom it will, in an increased degree, commit them in the future. Agitation and combination have brought about, within a decade, a marvelous increase of the direct power of these industrial classes. No fact has been more significant in the growth of this power than the increased conservatism with which it has been used. More intelligence has distinguished the movement than heretofore. A liberal education for the industrial classes is developing for their leadership, not only stronger and wiser, but more conservative men.

AN EDUCATIONAL DEPARTURE.

On emerging from the dark ages the world had no literature from which to draw knowledge and inspiration, save that of the ancient civilizations of Greece and of Rome. This only source of information and culture became the main instruction of the schools three centuries ago, and of course the fashionable instruction. Despite the superior civilization of to-day, with its broad culture, and despite the new world of thought and action—the outgrowth of sciences unknown to the narrower vision of the ancients—the study of ancient literature remains, through the force of custom, the prominent work of classical colleges. Herbert Spencer, alluding to classical education says: "Men dress their children's minds as they do their bodies, in the prevailing fashion." Congress gave to the industrial classes, who could not, would not, or did not care to afford a classical education, opportunity to inform themselves regarding the civilization, the varied and deeply interesting natural world, and the controlling and productive forces surrounding them and daily reacting upon their destinies.

COLLEGE POLICY.

To the full extent of its resources, the College will carry out the broad policy of its founders. First and prominently, it will "Teach such branches of learning as are related to agriculture and the mechanic arts." The former being in the thought of Socrates, the mother and nurse of all other industries, will receive special attention. This department will be made all that the people of Utah will support, not by money alone, but by the attendance of their sons and daughters. The prominence given to the Department of Agriculture will not give

rise to any jealousies, as the character of the agriculture of a country is a measure of the prosperity of other industries, and of a nation's wealth and culture.

The wealth and variety of Utah's mineral resources adapted to the support of the arts, are such that the College will fall far short of its duty if it does not give a zealous and earnest attention to mechanic arts, and to civil engineering. This work will be extended until its embrace includes irrigation engineering.

The young women of the Territory, attending the College, will be put on an equal footing with the young men in obtaining a special education for their sphere of life.

A review of the College courses, which will be found on following pages, shows that the College authorities have not forgotten that the man is before the industrialist. The technical work will be accompanied by those studies best calculated to impart that information which the average citizen now finds most useful and pleasurable.

For more detailed information regarding the proposed work of the College, the reader is referred to information given under "Courses of Study."

RESOURCES OF THE COLLEGE.

Congress provided "That there be granted to the several States, for the purpose hereinafter mentioned, an amount of public land to be appropriated to each State, a quantity equal to 3¹/₂,000 acres for each Senator and Representative in Congress, to which the States are respectively entitled." The law provides for the sale of these lands by the States without cost to the fund, and says: "So that the entire proceeds of the sale of said lands shall be applied without any diminution whatever to the purposes hereinafter mentioned." After defining the purposes of the grant, which have already been discussed, and after providing for the safe investment of the funds derived from the sale, the law says in Section 5:

The grant of land and landscrip hereby authorized, shall be made on the following conditions, to which, as well as to the provisions hereinbefore contained, the previous assent of the several States shall be signified by legislative acts.

First. If any portion of the fund invested as provided by the foregoing section, or any portion of the interest thereon shall, by any action or contingency be diminished or lost, it shall be replaced by the State to which it belongs; so that the capital of the fund shall remain forever undiminished, and the annual interest shall be regularly applied without diminution to the purpose mentioned in the fourth section of this act, except that a sum not exceeding ten per centum

upon the amount received by any State under the provisions of this act, may be expended for the purchase of lands for sites or for experimental farms, whenever authorized by the respective legislatures of said States.

Second. No portion of said fund nor the interest thereon shall be applied directly or indirectly, under any pretense whatever, to the purchase, erection, preservation or repair of any building or buildings.

On the admission of Utah to statehood, the College will come into possession of some 30 000 acres of land for each Congressional Senator and Representative that it may be entitled to, the funds derived from the sale of which, as it has been seen, Utah will be under obligation to perpetuate as a permanent fund for the maintenance of the College.

By an act of Congress passed in 1890, \$15,000 was given to each Agricultural College of the country. This sum is an annual appropriation and increases \$1,000 yearly until it reaches \$25,000. The revenue from this source for the year 1892-3 will be \$18,000. The supplemental act confines the use of the funds derived under it to instruction in agriculture, the mechanic arts, the English language and the various branches of mathematical, physical, natural and economic science with special reference to their applications to the industries of life, and to facilities for such instruction.

The Territorial act of organization gave \$25,000 for buildings. The last General Assembly gave \$48,000 and the present General Assembly gave \$108,000 to the College. The total revenue available for the biennial period ending Dec. 1893, is \$180,000.

THE EXPERIMENT STATION.

By an Act of Congress passed March 2d, 1887, \$15,000, which it is expected will continue as an annual appropriation, was appropriated for experimental work, to be conducted in connection with agricultural colleges. The first appropriation, or that of 1862, was for the exclusive purpose of teaching or imparting information already acquired, and to all classes of industrialists. The second appropriation, by law, is to be wholly devoted to the acquisition of information, or is wholly for research. This original research is to be in the field of agriculture, and is primarily for farmers and secondarily for students. The Congressional law defines quite fully the proposed line of research. Briefly stated the intended investigation may legitimately cover any question relating to economic agriculture.

Under the "Course in Agriculture" the brief presentation of

the work now going forward at this station, will illustrate the purpose of the law.

RELATION OF UTAH TO THE COLLEGE.

In accepting the grant of Congress for founding both the College and the Station, Utah pledged herself to carry out the purpose of Congress in good faith, and accepted the obligation to equip and maintain the College, and to guard its funds. Its Trustees are Territorial officers.

The College is, then, a Territorial institution, fully under Territorial control within the Territory's stipulations with Congress, and has the Territory's pledge to support it.

It is unnecessary to quote the Territorial law in full. The following points of interest will be noted:

First. The law located the College in Cache County.

Second. Sums have been given to erect college buildings and to equip and maintain them, as already noted.

Third. The objects of the College were defined by the Territorial law in the language of Congress already quoted. In the same manner the purposes of the Experiment Station were defined. The Territory is in full accord with the terms of the Congressional grant.

Fourth. Section 10 is quite important and will be given in full. With this section the management is in most hearty accord. Positive assurance is hereby given to the public that there will be a faithful discharge of the duties devolving upon those in authority, touching this portion of the law.

SEC. 10. In the appointment of professors, instructors and other officers and assistants of said College, and in prescribing the studies and exercises thereof, and in every part of the management and government thereof, no partiality or preference shall be shown by the trustees to one sect or religious denomination over another, nor shall anything sectarian be taught therein; and persons engaged in conducting, governing, managing or controlling said College and its students and exercises in all its parts, shall faithfully and impartially carry out the provisions of this act for the common good, irrespective of sects or parties, political or religious.

Fifth. The course of instruction "shall embrace the English language and literature, mathematics, civil engineering, agricultural chemistry, animal and vegetable anatomy and physiology; the veterinary art, entomology, geology and such other natural sciences as may be prescribed, technology, political, moral and household economy, horticulture, moral philosophy, history, book-keeping, and especially the application of science and of the mechanical arts to practical agriculture in the field."

The length of the course was made not less than nine months.

LOCATION OF THE COLLEGE.

Cache County and Logan gave a farm of 100 acres, and thereby secured its location at Logan. Logan is the capital city of Cache County, and, in a commercial sense, of Cache Valley. It is surpassed in wealth and population by only three cities of Utah, and in the beauty of its location by none. Cache Valley is some sixty miles in length, twelve miles in width, and is completely surrounded by the Wasatch range of mountains. From the upper bench of the old lake formation, upon which the College and farm are located, can be seen, in the clear air of this inter-mountain region, through its entire length, the full expanse of the rich valley in which it is placed, while the uniquely corrugated mountain sides encircling the valley are seen in all their wealth of varied beauty. The College is located at the visual key of this unique and picturesque valley. The beauty of its location is probably unsurpassed by that of any other college in the country. Logan has the characteristics of a beautiful college town. Its rural population is in morals second to no town in the Territory—its size equaling the demands upon it for boarding facilities—while it is not large enough for the free reign of vice. Board can be procured at lower rates than in large cities.

COLLEGE EQUIPMENT.

The main college building is one of the largest college structures in the country, being 342 feet long by 190 feet deep in the center. Funds were given by the present General Assembly to complete the building shown in the frontis piece, except 80 square feet, or about one-sixth of the building is left for future completion.

It contains thoroughly ventilated recitation rooms for the several departments, and working or practical exercise rooms ample in dimensions and complete in their conveniences for the work shops, cooking, sewing, householding, dairying, laundrying, engineering, agricultural and business departments.

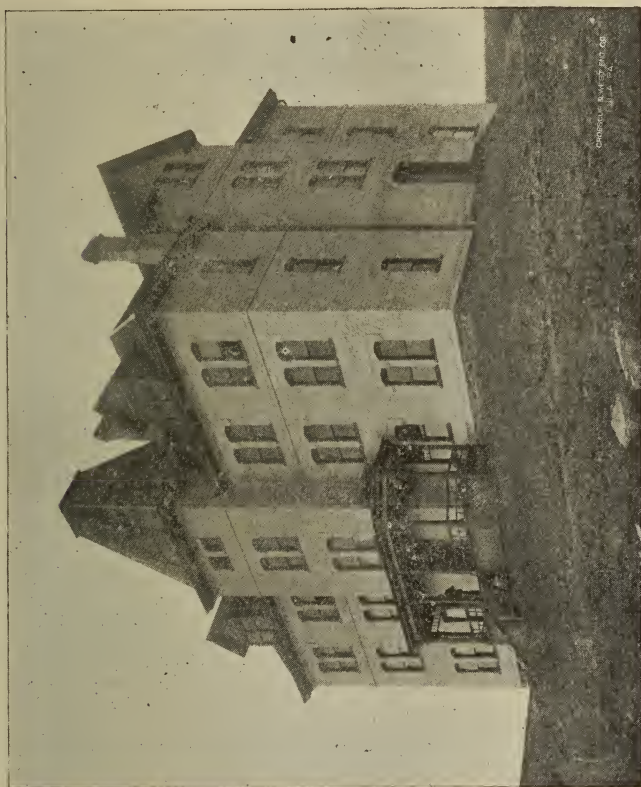
It contains laboratory, museum, library and gymnasium rooms and a military drill hall of ample size, each being some 80 feet square. Its audience room or chapel will hold 1600.

Three large rooms have been set aside for halls for the literary societies.

Its rooms are light and pleasant to a rare degree and its halls wide and roomy, extending on each floor the entire length of the building.

In the near future, large bath rooms will be put in for the accommodation of both sexes, where baths can be taken at pleasure.

A new and modern club or boarding house is connected with the College. It contains thirty-three rooms for students. These rooms are 12x14 feet, exclusive of a good closet to each



BOARDING HOUSE.

room. Each room has two registers for ventilation, a looking glass, a full set of chamber ware, a wash stand, table, chairs, and either a bedstead or two cots. In addition to the above

there are rooms for the matron and for cooks, a fine, large reception room for students, 19x27 feet, a model kitchen, a dining room, a pantry supplied with modern conveniences, a laundry room and bath rooms.

A model barn is connected with the department of Agriculture. It contains a silo, a root cellar, an engine room, quarters for swine, for sheep, for cattle, for horses, for hay and for other coarse fodder: for grain, tools and for horticultural use.

A farm house with dairy rooms associated with it, illustrates the modern conveniences that are found in connection with modern farm houses.

Three laborers' cottages and a house for the Farm Superintendent are located on the grounds of the College.

All the buildings are new, well adapted to their purposes, and of credit to the Territory.

Connected with the above buildings is the Experiment Station building, where experiment work is constantly in progress.

The central College building is equipped with the very best of modern college furniture.

LIBRARY.—The Library contains hundreds of pamphlets and 3000 books that have recently been very carefully selected. They cover the fields of thought to which it will be most useful for students to turn their attention—travel, biography, political economy, sociology, metaphysics, history, fiction and the technical works of the several departments. The works are from the pens of the world's great thinkers.

The library room contains periodicals that represent the leading lines of modern thought. It is a well equipped section of the college work and free to college students.

A knowledge of current literature is a prime essential to every American, and for it there is no substitute, whether it be used for pleasure or for power, hence the students are encouraged to make use of the library.

MUSEUM.—A collection for a general museum upon which the several departments of the College may draw for means of illustrating class room teachings, has already acquired importance. A fund has been devoted to this feature of the College work.

APPARATUS.—Each of the five courses of instruction has a collection of apparatus and materials for object teaching. Under each course of instruction will be found a statement of the means provided for illustrating the instruction given in it. Some \$35,000 has been expended or is being expended for means of illustration.

FARM.—Eighty-five acres of land are used for instruction in the art and science of agriculture and of Horticulture.

Three and one-half acres of ground located close to the College building are set aside for the sole use of students for athletic sports.

COLLEGE INSTRUCTION.

The existence of the Agricultural College of Utah rests upon the developiment of the sciences as unfolded in the immediate past. Its distinctive work will be, in addition to giving a liberal education, teaching those sciences related to industry and pointing out, as far as possible in college life by actual manual exercise and by the use of apparatus and of materials and agencies used in the arts, their application to industrial life. This work evidently requires men of special instruction and experience. The instructors are all specialists of a high order of attainments in their several fields of instruction, and their work is comparable with that of the better colleges of the country. The instructional policy of the college is based upon the belief that all studies serve the purpose of drill. hence little time is wasted in pursuit of the relatively inconsequential truths and time is concentrated on central principles and in teaching students to think for themselves. Where mere information is memorized it is of the more valuable character, and when general principles are inadequate for the student to clearly grasp the desired information. One reasoner is worth a dozen imitators.

COLLEGE COURSES.

The College work includes five distinctive lines of instruction, four special courses and a Preparatory Department.

1. Course in Agriculture.
2. Course in Domestic Arts.
3. Course in Mechanical Engineering.
4. Course in Civil Engineering.
5. Business Course.

The special courses are as follows:

1. Three years' course in Agriculture.
2. Course in Mining Engineering.
3. Irrigation Engineering.
4. Two years course in Domestic Arts.

In addition to these special courses there has been organized two courses of winter lectures covering ten weeks each, namely: A course of Agricultural lectures and a course of lectures for the Domestic Arts Department.

The courses in Mechanical, Mining and Irrigation Engineering will be Post Graduate Courses of one year each.

PREPARATORY DEPARTMENT.

The state of development of our public schools requires, for a few years to come, a preparatory department of one year for fitting those students who are unable to pass an examination for entrance to the college courses. This, it is hoped, will be a temporary necessity.

The college is desirous of avoiding the necessity of preparatory studies, yet it believes that at present, those who are denied the privilege of a not overcrowded common school of a high grade, and who propose to pursue their studies at this College, will find it advantageous to fit themselves in its Preparatory Department to enter the College.

The class room exercises of this department are one hour each daily and are conducted as much for the mental discipline given as for the facts imparted. Students in this department are at a period of mental development when it is more important that right methods of instruction be pursued than it is at any later period of life.

Acquiring facts is of far less importance than learning how to think. Cobbett said that one ounce of reason is worth whole tons of memory. A student who merely learns facts will never become a scholar nor an original thinker. He will remain a follower and not a leader.

It has been found that students who come to this College from our common schools require further discipline in the elementary studies.

PREPARATORY COURSE.

Hour.	FIRST TERM.	SECOND TERM.	THIRD TERM.
1.	Penmanship.	Grammar.	Grammar.
2.	Grammar.	U. S. History.	Arithmetic.
3.	Spelling eight weeks. Reading eight weeks.	Arithmetic.	Physical Geography.
4.	Geography.	Reading and Elocution.	Course in Reading.

This preparation fits students for the several courses of College study.

COURSE IN AGRICULTURE AND SCIENCE.

It has been said by a great poet that "All nature is but art unknown to thee." This being so, agriculture is the art of arts, for it unceasingly deals with nature and is thereby brought into daily contact with life and the sciences related to life. In the management of soils and in the use of tools it comes in contact with physical and mechanical laws, and in the markets, with commercial and political laws. Very happily agriculture deals with more of the sciences than any other industry, thereby causing agricultural education to become more nearly a liberal education than the education that is necessary to any other industry or profession. Very nearly the round of natural sciences are involved in farming, so that a well educated farmer is virtually liberally educated as a citizen.

In the following course of instruction very few studies are involved that are not an essential part of the education of a man best equipped to become the most successful farmer. It may well be termed a course in the applied sciences.

Heretofore agriculture has been without guiding laws. It has been a "rule of thumb" business. It is now rapidly becoming the most learned of the industries or professions. Of its profundity there can no longer be any doubt. The inherent fascination of its living forms and of its complex and intricately balanced laws will yet attract to it the best talent, as it is the finest field for industrial gratification and for the development of the highest order of intellectual and physical manhood.

Statistical inquiry has shown that in the several countries of Europe the produce per acre is increased over that of the most illiterate countries by the increased ratio of the population that can read and write. The same fact is found to exist between the states of the Union. A single illustration of the general law will be given. In 1860, fifty-three per cent of the population of France and nearly all of the population of Germany, could read and write. In the former country the crops were 18.50 bushels per acre while the latter yielded 22.05 bushels. Germany is a poorer country for agriculture than France, yet the yield is nearly twenty per cent more than that of France. Germany has more Agricultural Colleges and Stations, and erected them earlier

COURSE IN AGRICULTURE.

FRESHMAN YEAR.

Hour.	FIRST TERM.	SECOND TERM.	THIRD TERM.
1	Grammar and Composition.	Rhetoric.	English Literature.
2	Higher Arithmetic.	Algebra.	Algebra.
3	German or either Music, Elocution, Course of Reading or Commercial Law.	German or either Music, Elocution, Course of Reading or Mechanical Drawing.	German or either Music, Physical Geography, Elocution, Mechanical Drawing or Business Correspondence.
4	Free Hand Drawing.	Free Hand Drawing.	
5 & 6	Shop work in Iron. 3	Shop work in Wood. 3	Shop work in Wood.

SOPHOMORE YEAR.

1	Geometry	Organic Chemistry.	Physics.
2	Chemistry.	Physics.	Agricultural Chemistry.
3	Botany. 3	Book-keeping.	Botany.
4	Horticulture. 4	Horticultural * Lectures and Root Grafting. 1 Surveying. 2	Surveying and field work in Surveying.
5 & 6	Work or practice on Horticultural Grounds. 3 Chemical Laboratory. 3	Laboratory practice in Chemistry. 3 Physical Laboratory. 2	Botanical Laboratory. Monday, P. M. Horticultural work. 1 Physical Laboratory. 2

JUNIOR YEAR.

1	Agriculture.	Mineralogy and Lithology.	Agriculture, Agricultural practice.
2	Botany.	Entomology. 2 Laboratory practice in Mineralogy. 3	Entomology.
3	Zoology 3 Physiology. 2	Physiology.	Geology.
4	Zoological Laboratory. 2	Agriculture.	Civil Government.
5 & 6	Farm work. 2 Botanical Laboratory. 3	Dairy practice.	Laboratory practice in Entomology.

SENIOR YEAR.

1	Veterinary Science.	Agriculture.	Veterinary Science.
2	German or Mental Science. 9 Moral Science. 8	Veterinary Science.	English Literature.
3	Business and Social Ethics and Manners.	Political Economy.	Agricultural Lectures and Farm practice.
4	Agriculture.	Astronomy or Music, Mechanical Drawing, Elocution and German.	Course of Reading or German. Thesis Work.
5 & 6	Farm practice.	Practical lessons in Veterinary Science.	

The degree of B. S. (Bachelor of Science) is given to those completing the course.

REMARKS ON INSTRUCTIONAL WORK.

AGRICULTURE.—An exercise a day for two years is given to technical instruction in Agriculture. The greater part of the instruction for this class is given by lectures and by field exercises, as very few agricultural works are adapted to school room study.

These lectures consider the history of the development of the art and science of agriculture; farm buildings and fences; farm implements,—their development, care and use; the development and characteristics of the various breeds of cattle, horses, sheep and swine; the art and science of breeding; soils,—their origin, classification and their physical laws; tillage of soils in its relation to moisture, crops, and to the physical and chemical condition of soils; manures—their composition, value, preservation, preparation and use; farm crops,—their character, improvement, seeding, cultivation, harvesting, preservation; feeding—animal digestion, food value of crops and their combination for feeding to the several classes of animals, and the art of feeding; dairying in all of its complex relations, and the application of the knowledge acquired to the art of organizing a successful type of farming of a high order

The lecture room and the farm will be wedded. Exercises on the farm and excursions to farms successfully conducted will afford means of converting abstract into concrete knowledge, or general into practical knowledge. Successful farmers will be invited to deliver lectures to the students, thus bringing them into contact with those who may speak wholly from the practical side of farm problems.

A statement of the means in the possession of the College for illustrating the teachings of the lecture room will be found on following pages.

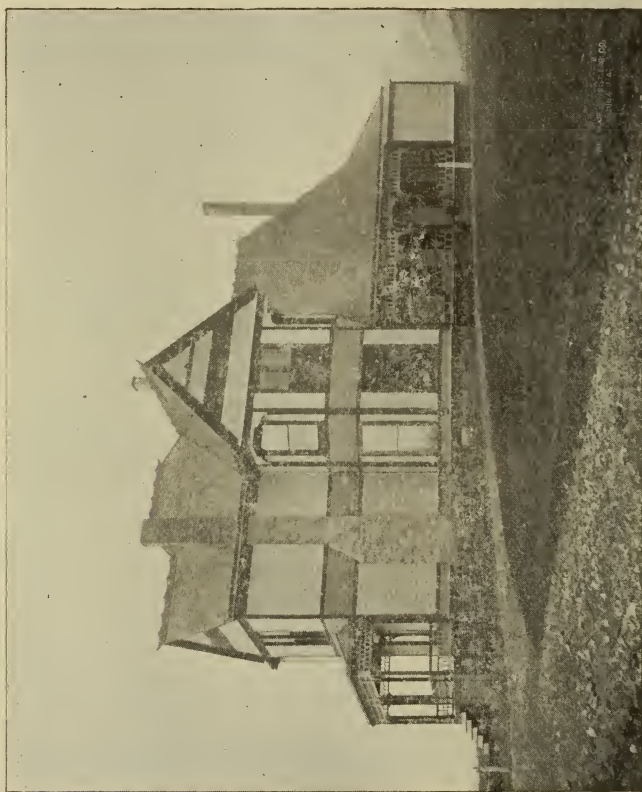
HORTICULTURE.—Instruction will be given both by lectures and by field exercises. A daily recitation or a daily exercise for the entire year is required to complete the studies of this subject. Instruction will be given on the preparation of ground for garden vegetables and in their improvement, planting, cultivation and general care; in the propagation, cultivation and general care of small fruits; harvesting, preservation and general care of large fruits and management of fruit trees. This instruction will include seeding, grafting by the various methods, budding, pruning, and picking, packing, and marketing fruit.

Forestry will receive considerable attention. Students will have opportunity to work upon the forestry grounds of the College, and to note methods of planting and care of the

several kinds of trees and to observe their habits and rapidity of growth.

The grounds of the Horticultural Department contain a large ratio of the most promising kinds of economic trees. The extremely high price paid for hard wood lumber in Utah, makes it probable that rare kinds of trees may be grown here at a profit.

The management of green house plants, including flowers, will be taught to the young women of the college.



FARM HOUSE.

Horticulture is approximately a polite art, and a knowledge of it is becoming more and more prized by all classes of citizens. This department, therefore, will be made a strong one. Effort will be made to blend theory and practice as perfectly as possible.

ENTOMOLOGY.—This subject will be taught with special reference to insects injurious to vegetation. The world is now in a measure conquering the insect foes of plants, and has accumulated valuable information that will be imparted to the students.

ZOOLOGY.—Will be treated by lectures in which an outline of the subject will be given. These lectures will be illustrated by charts, diagrams, etc. It will be made a preparatory study for physiology and veterinary science.

VETERINARY SCIENCE.—The class in veterinary science is in charge of a skilled veterinarian. Lectures are given on anatomy, physiology, principles of hygiene and the special pathology and treatment of the common and most distinctive diseases of domestic animals.

Diseases of stock will be treated in the presence of the students, one day in each week during the spring time.

Sufficient information will be acquired by this study to enable the student to treat intelligently the common ailments of farm stock and to guard against the quack practice so frequently seen on the farm.

SHOP WORK.—Three exercises of two hours each per week for two terms of the year and five days for the spring term, will be devoted to work at the forge with iron and at the bench with wood. Skill in handling ordinary carpenters' tools, and in common blacksmith work at the forge will be acquired that will excel that of ordinary workmen. Habits of accuracy and of perfection in the details of work will be acquired that will remain as a force or mental habit to affect all after life. The design is to acquaint young farmers with the manipulation of tools and with some of the principles involved, for their own use on the farm. This work has been found to be one of the most popular and useful labors of courses in agriculture.

BOTANY.—Elementary Botany will commence the first term of the Sophomore year. During this term the student will become familiar with the roots, stems, leaves and flowers of plants. Each student will be required to do field work.

The third term of the Sophomore year will be given to the study of Physiological Botany and of plant analysis. Each student will be required to collect, name and properly mount specimen plants.

The first term of the Junior year, the study of Cryptogams and Economic Botany will be taken up. Two afternoons each week will be given to the microscopic study of the structure and the diseases of plants.

Especial attention will be given to such fungi as are injurious to cultivated crops.

ELEMENTARY CHEMISTRY.—This subject deals with the general principles of this science. Instruction is given by means of text-books, lectures, and class room illustrations, supplemented by laboratory practice.

ORGANIC CHEMISTRY.—In this course instruction is given in the principles of organic chemistry, and the student is made familiar with the more important organic compounds found on the farm and in the households.

AGRICULTURAL CHEMISTRY.—The instruction in Agricultural Chemistry is imparted by lectures in which the following topics are treated: Air, water, and soil as sources of plant food; chemical composition of plants; manures, general and special; chemical principles of tillage, irrigation, systems of rotation, chemical composition of the various crops, methods of determining fodder values, etc.

ZOOLOGY.—During the first term of the Sophomore year eight weeks will be devoted to reconsideration of the more important topics of the subject. The work will be made preparatory to the study of Physiology and Veterinary Science.

ENGLISH.—It will be observed that two and one-third years are given to Grammar, Rhetoric and English literature during the time that students who enter the preparatory course are at the College.

A command of English is an acquisition of commercial, political and social power. It is believed that it is second in importance to no other study in its influence on the culture and general happiness of society. Thorough drill is therefore given in Grammar and English.

A term's work in higher English Grammar makes sure the foundations of our language.

The study of Rhetoric is pursued with a special view to imparting skill in the use of clear, vigorous English. All the elements of style are examined with the aid of a text-book; but, throughout the entire year, specimens of composition in various kinds of literature are presented to the attention of students and they are then called upon to write, not only the ordinary descriptive essay for which occasion arises in the professions and in nearly all the walks of life, but also specimens of the argumentative style which would be needed in any political meeting or office. They also generally manifest considerable aptitude in humor, romance and verse though they had not imagined that they possessed any such latent capac-

ity. English literature is taught by text-books and by selections from the best authors. The early history and development of the English language is first examined, then the great periods of English literature, and incidentally, of English history, are discussed, particularly the Elizabethan and Victorian periods. The poets and prose writers of America during this century are discussed and the aim in this study is to impart a taste for the better class of literature both by showing its superior interest and by bringing students into personal contact, so to speak, with the writers themselves.

HISTORY.—The History of the United States receives due attention in the preparatory course and is taught with a view to illustrating the life of the people at various periods; the evolution of their system of government; their manners and customs and their gradual advancement in comfort through inventions, and in culture through literature.

The same objects are kept in view in an elective course in general history which is offered to more advanced students.

CIVIL GOVERNMENT.—This covers the field of United States History more philosophically in the Junior year and traces the progress of constitutional liberty through the long line of English History and in our national and state constitutions and treats of the organization of territorial and local governments. Great interest is imparted to this study by free discussion and occasional debates on questions of the day.

POLITICAL ECONOMY is studied by text books and by lectures. The text book gives the established scientific principles of economics. The lectures examine the subject by the historical and statistical methods and seek to find in all history and even among prehistoric nations, examples in accordance with which nations, states, cities and private business may be managed to advantage; and then accumulate all possible data from statistics of wages, taxation, population, emigration, profits in all occupations, etc., for the purpose of rigidly testing the comparative methods of various systems, and establishing a system which approaches perfection.

GERMAN.—The study of German is offered to the young men on account of the admirable untranslated literature of this language on the subject of scientific agriculture. German agricultural periodicals are placed at the disposal of students.

After acquiring the rudiments of German, students begin to read and converse and thus very soon become masters of an extensive vocabulary, which enables them to take up

works in their special field. The ability to speak German will prove of great value in business, and skill in reading German will reveal new avenues of thought and knowledge in a literature second only to English.

OPTIONAL STUDIES.—Young men are urged to study German but are not compelled to do so in order to receive their diplomas. It is made optional for the first and last year's course for the reason that it is better to study it in the opening period of college life, but as maturer judgment leads those that have declined it, to reconsider their purpose, an opportunity is again offered.

ELOCUTION.—There is opportunity to study both German and Elocution. Elocution will be taught for one year and as a science. Voice culture will be the initial work followed by a thorough study of the principles of Elocution and their application. Good address lends power to good English and to logic and often rises superior to them in its effect on the public mind. All three must be one to him who aspires to the highest success on the rostrum.

OTHER OPTIONAL STUDIES.—Choice of music and of several industrial studies is given, the latter in the interest of those who, for special reasons, may desire them and yet who do not desire to take the studies of the course to which they belong.

GENERAL NOTES ON THE ABOVE COURSE.

Those who enter college from the Preparatory Department will receive one year's drill in English Grammar, and one and one-third years more in English during the regular course. This time and the time devoted to Political Economy, Civil Government, Moral Science, Mental Science and History coupled with Mathematics, and the sciences and the time devoted to the library, will so far develop the taste for that class of reading which informs and disciplines the mind for the proper discharge of effective citizenship, that a graduate of this course will become well equipped to enjoy the book of nature surrounding him, the society of man, and to represent the interest of the class that the course seeks to promote. It is said that the chances of a college graduate for high honors in the country are multiplied two-hundred fold by a collegiate training. The college does not seek to train statesmen but to fit young men taking this course for effective farming and as representative citizens. It is well known that farmers have few representatives of their class in National affairs and that their interests have never been effectively protected.

WORK SHOP.—A bench with a full set of carpenters' tools is assigned to each student. Students are taught to handle tools with skill, to work wood into various forms and to make the several joints, splices, etc., that are ordinarily made by carpenters.

The work shop is also furnished with wood-turning lathes.

Modern forges with power blasts occupy a separate room. In this room the principles and practice of upsetting, tempering, welding and forming various tools, in short blacksmithing, are taught.

The engine supplying power is by turns run by students.

FARM AND HORTICULTURAL WORK.—It will be observed that throughout the four years' course laboratory practice in physics, botany, chemistry and veterinary science, shop work and in labor on the farm and on the horticultural grounds keeps students in daily exercise. This is found to be a potent way to retain a love for an active physical existence, which it is often claimed is lost during college life by the old system of education. while at the same time it secures health and vigor to the students.

The work on the Farm and in the Horticultural Department, while largely for the purpose of illustration, and to gain familiarity with the methods pursued, is in part for physical culture. Young men desirous of working beyond the required time, will, when they are needed, be compensated for their services.

MEANS OF ILLUSTRATION.

LABORATORIES.—The apparatus and means of illustration in the Chemical, Physical, Botanical, Veterinary, Agricultural and Horticultural Laboratories, Museums and Libraries together with farm and horticultural appliances and pure bred stock are valued at \$32,000. Already the College has secured from Prof. M. E. Jones, 4,500 species of the flora of Utah and the intermountain region for the Botanical Laboratory. In addition to the Chemical Laboratory of the College, the Experiment Station has a Chemical Laboratory that is equipped at a cost of \$2,500.

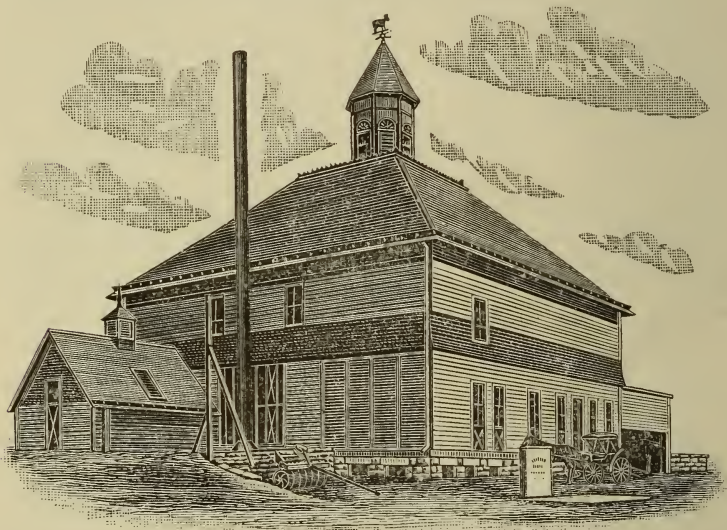
LIBRARY.—The Library contains a large and choice selection of agricultural books, and the reading room is supplied with agricultural papers.

MUSEUM.—The museum contains material for class room illustrations for this department. Some 400 slides for use in

the magic lantern illustrate processes that cannot be shown in practice, while collections of wools, grain, some forty milling products of wheat, etc., etc., afford means of teaching by the eye rather than by the ear.

The Experiment Station affords a most valuable means of illustrating modern farm processes and has the added advantage of stimulating the thinking and observing powers as no other means of object teaching can do, for the station is engaged in testing methods and in searching for unknown laws.

FARM HOUSE AND FARM BARN.—It has already been stated that the Farm House and Farm Barn are modern and very convenient. The barn it is believed is unexcelled in its conveniences by any college barn in the country.



FARM BARN.

THE FARM.—On the farm proper there are over three hundred and thirty plats laid out for investigations. These cover time of irrigation, amount of water to use, sub-irrigation, night versus day irrigation, method of fitting ground for irrigation and other irrigation trials. They include trials of varieties of wheat, corn, oats, barley and of forage crops; of mulching, drilling against broadcasting, methods of tillage, time of tillage, depth of tillage, several methods of plowing, no tillage, depth of planting, distance of planting, time of sowing, amount to sow, selected seed, time of harvesting, chemical fertilizers, methods of manuring, varieties of grass for hay, varieties of

grass for pasture—to be tested by actual grazing trials, mixed grasses for pasture, several crop rotations and soil and other studies.

Some twenty-six feeding trials with cattle, sheep, horses and hogs are in progress. Pure bred cattle of the Short Horn, Jersey and Angus breeds and Shropshire sheep and Berkshire swine are raised. These are all highly bred and model animals.

HORTICULTURAL DEPARTMENT.—In this department there is a series of the most important economic trees under test. Many have been introduced by the Station. One hundred and twenty-five varieties of apples, many varieties of pears, peaches, plums, grapes, strawberries, raspberries, blackberries, potatoes, and vegetables of various sorts, are on trial, while several lines of horticultural investigations are in progress.

CHEMICAL DEPARTMENT.—The Chemist of the Station will carry forward a large amount of chemical work in plant and in animal life and on soils, etc.

It is believed that the Agricultural College and Agricultural Experiment Station of Utah are equipped for first class work and will compare favorably with the very best institutions of the kind in this country.

The Bulletins of the Experiment Station will be sent free to any one asking for them.

LITERARY OPPORTUNITIES.

READING ROOM.—The reading room is well supplied with papers suited to the wants of the several departments.

LECTURES.—Members of the Faculty and speakers from abroad will deliver lectures in the Chapel at regular periods.

LITERARY SOCIETIES.—The students of the College have organized two literary societies, one for young women and one for young men, thereby affording an opportunity of acquiring before an audience, self possession, ease and skill in debate. The other means for advancing the literary tastes and acquirements of its members that are common to such societies—essays, orations, papers, etc., are included in the exercises of these societies.

MILITARY DRILL.

Military drill will be taught to the young men and to the young women who desire it.

This department of instruction has become very popular in college life. It takes the place in many colleges, of Calisthenics, and is found to be a most valuable method of securing physical culture. It gives an erect carriage, ease and grace of bodily movement, and habits of discipline and order. The influence of military drill is soon visible in its effects on those taking it.

The marked advantage of this practice to young men has led several colleges to extend the privilege of military drill to young women with the most happy results. The spear, light rifle, or some other light weapon is usually carried. The young women of this college are required to take military drill unless excused by request of their parents.

Since the printing of the list of the Faculty for this year the Secretary of War has kindly granted our request for an Army detail to take charge of the instruction in military science and drill. This assures not only a capable officer but the proper arms, etc., for the necessities of this feature of our work.

SHORT COURSE IN AGRICULTURE.

FRESHMAN YEAR.

Hour. FIRST TERM.	SECOND TERM.	THIRD TERM.
1. Penmanship.	Grammar.	Grammar.
2. Grammar.	U. S. History.	Arithmetic.
3. Spelling eight weeks. Reading eight weeks.	Book-keeping.	Physical Geography.
4. Drawing.	Arithmetic.	Horticulture.
5 and 6 Shop work.		Shop work.

JUNIOR YEAR.

1. Agriculture.	Rhetoric.	Agriculture.
2. Chemistry.	Physics.	Agricultural Chemistry.
3. Botany. 3	Physiology.	Botany.
4. Horticulture. 4	Agriculture.	Surveying and field work in surveying in afternoon
Chemical Laboratory. 3 5 and 6 Horticulture work.	Root Grafting. Labor- atory practice in Chem- istry.	Agricultural and Horti- cultural practice.

SENIOR YEAR.

1. Veterinary Science.	Agriculture.	Veterinary Science.
2. Botany.	Veterinary Science.	Entomology.
3. Agriculture.	Political Economy.	Agriculture.
4. Business and Social Ethics and Manners.	Entomology. Labora- tory practice. 2	Special Reading Course in Mineralogy, Lithol- ogy and Geology.
5 and 6 Botanical Laboratory. Farm practice.	Lessons in Veterinary practice.	

This course is intended for those who cannot or will not incur the expense of the full course of study. It is a business course in agriculture. It is framed on the same plan that courses in law and medicine are, as a purely technical course, and is intended, as they are, to furnish economic or practical or as it is known, technical information. English Grammar is made an exception, in the first year of the course. The

first year furnishes a small degree of preparatory fitting, without which no student would be prepared to study or learn in the field of agriculture, as its abstruse sciences require some preliminary training.

WINTER LECTURES ON AGRICULTURE.

As a preliminary trial or test of the public demand for such a course of lectures for farmers, a course of practical lectures one term in duration will be inaugurated at the opening of the winter term in 1893, provided there are ten applications for admittance to the course. These lectures will be open to every one free of charge, and without examination touching educational qualifications.

Application should be made two or more weeks in advance of the opening lectures.

No degree will be attached to either course, although a certificate stating the fact of honorable completion of the three years' course will be given.

SPECIAL LECTURES IN AGRICULTURE.

Agriculture.....	50 lectures.
Horticulture.....	30 "
Entomology.....	10 "
Botany.....	10 "
Chemistry.....	20 "
Veterinary Science.....	20 "
Political Economy.....	10 "
Special Reading Course.....	50 exercises.

The lectures in agriculture will be confined to the most important practical questions in farming, such as tillage, drainage, dairying, breeding, stock feeding, manuring and to answering such questions as may occur to those taking the lectures.

HORTICULTURE.—Horticulture, Chemistry and other studies will be treated wholly from the directly practical side. Those principles of Horticulture, Chemistry, etc., that bear directly upon practical operations on the farm will be explained and their application pointed out.

POLITICAL ECONOMY is included for the reason that farmers are now taking an active part in National affairs, and often in

ignorance or in defiance of plain first principles and well settled laws of political economy.

The time given to these lectures will enable a teacher to point out some of the fundamental laws that control in commercial and civil affairs and thus enable him to widen the field of industrial view of those employed in farming who have given little attention to the subject, who may attend the lectures. An increased ability to understand the current and scientific literature of agriculture and a taste for such literature will be acquired.

COURSE IN DOMESTIC ARTS.

The course for young women will be the same as for young men in the four years' course in agriculture, except in the hours devoted to shop work, farm or horticulture work. There will be some seventeen studies of one lesson daily, wherein the course for young women will not run parallel with that of the young men. This time will be devoted to special work adapted to woman's sphere of life. Co-education is now very widely recognized in the higher as it has been in the lower schools. No adequate reason can be assigned for denying women a share of the benefits of this public bequest. Once admitted into the institution, their right to special consideration in making up the courses of instruction is as clear as that of young men. For this reason if no other, special attention is given to those branches of information in which young women require technical proficiency, and to those studies that tend to adorn life in the sphere in which they move most.

IMPORTANCE OF THE COURSE.

Modern Household Economy and Home Keeping are rapidly broadening out into a wider field. Their plane of existence has been greatly elevated, and is still being lifted to a higher and wider sphere, and one well worthy of the highest powers of woman. This department is based upon the belief that the home is a vital force in the development of a broad culture and of a sound and noble social, moral, political and economic existence for mankind. It is believed that Domestic Economy as a science and an art, is broadly based in its social and economic phases, and requires talent of a high order. In no field is the power of refinement more potent and pleasurable, and there is no other of equal importance.

This course will have the friendly care of those to whom it is committed.

COURSE IN DOMESTIC ARTS.

FRESHMAN YEAR.

Hour.	FIRST TERM.	SECOND TERM.	THIRD TERM.
1	Grammar and Composition	Rhetoric.	English Literature.
2	Higher Arithmetic.	Algebra.	Algebra.
3	Sewing.	Sewing.	Cutting and Sewing.
4	French or either Music, Elocution, Drawing or Course of Reading.	French or either Music, Mechanical Drawing, Elocution or Course in Reading.	French or either Music, Elocution, Physical Geography, Mechanical Drawing or Course in Reading.

SOPHOMORE YEAR.

1	Geometry.	Organic Chemistry.	Physics.
2	Chemistry.	Physics.	Cooking in relation to Dietetics.
3	Botany ten weeks.	Book-keeping. 4 Cooking practice.	Botany.
4	Free Hand Drawing.	Cooking Lectures.	Horticulture.
5 & 6	Out-door lessons in Horticulture, and Green House practice.	Laboratory practice in Chemistry and Physics. Cooking practice.	Laboratory practice.

JUNIOR YEAR.

1	Literature.	Mineralogy and Lithology.	Hygiene and Laboratory practice.
2	Botany.	Entomology. 2 Laboratory practice in Mineralogy.	Entomology.
3	Zoology 3 Physiology. 2	Physiology.	Geology.
4	Zoological Laboratory.	Drawing and Painting.	Civil Government.
5 & 6	Botanical Laboratory, Cooking and Canning Fruits. 2	Dairy practice.	Laboratory practice in Entomology.

SENIOR YEAR.

1	Painting.	Advanced Cooking.	Painting.
2	Mental Science. 9 Moral Science. 8	Political Economy.	English Literature.
3	Sewing with reference to Designing and Study of Color.	Fancy Work.	French, Fancy Work, Cooking, Music, Elocution, Commercial Law.—Optional.
Music, Elocution, Drawing and Painting. French, Chemistry, Course in Reading.—Optional.		French, Astronomy, Drawing and Painting. Elocution, Music, General History.—Optional.	Course of Reading and Thesis Work.

REMARKS ON THE SPECIAL STUDIES OF THE ABOVE COURSE.

COOKING.—The art as well as the science or the chemistry of cooking is taught. Exercises in cooking in application of

lecture room teaching are a regular feature of the work. Lectures in chemistry are succeeded by cooking exercises. The cooking exercises are accompanied by table setting, table waiting and presiding at the table as hostess. The latter exercises develop the knowledge and grace that characterize the well bred hostess.

For the development of this feature of the course the College is provided with a kitchen, dining room, pantry, a model cooking range and kitchen and table ware.

CUTTING AND SEWING are taught in the Freshman year, with special terms in the Senior year for fancy work and for the designing of artistic gowns.

The work begins with all varieties of hand sewing, hemming, overcasting, blind stitching, button holes; up through cutting out, measuring, basting, fitting, draping, trimming and entirely finishing a gown. The students may furnish material and make their own garments. It will be the aim to teach hygienic modes of dress.

DAIRYING.—Butter and cheese making is a fine art. Milk is one of the most complex and unstable compounds known in the whole range of farm life. In no other field of farm economy is the product so irregular and with results so unfortunate. The problems involved are very complex and interesting. Very decided attention will be given to this most important field of work, over which women has general charge. Fortunately, the more exacting work of the dairy now falls to other hands. While this is true, the necessity remains of mastery by woman of the philosophy of dairying.

HYGIENE.—A special course of lectures on Hygiene will be given to the young women of this course.

MUSIC AND PAINTING.—Music and painting are given free of charge. They are not made compulsory studies; but those who have a taste for and can acquire these graces are encouraged to devote time to them.

No student will be allowed to take music who does not devote at least one hour daily to practice. One year of music only can be taken prior to the Senior year, when a second year's work may be taken.

French is made an optional study, this policy is in deference to the wishes of many of our citizens. Young women are, however, encouraged to acquire French. It is still the diplomatic language of Europe and that of fashionable circles, while its terms are more used in the special studies of the young women of the College and is also more used in the do-

mestic affairs of women than those of any other foreign language.

German is offered to young men for the reason that Germany is the early home of agricultural science and is still the richest language, save our own, in agricultural literature.

HORTICULTURE.—Horticulture has a fascination for all classes of our population. Man has an inherent love of nature. Her living forms everywhere claim the admiration and almost the affection of every cultivated or refined man or woman. Horticultural and household plants are varied; are very plastic in our hands, and are either beautiful or useful. In either case they minister to our pleasure. Household plants and the farm and village garden are always objects of interest and of importance to women, and often the source of physical health, inducing, as they do, frequency in the open air. This does not necessitate the added drudgery of physical work in the garden any further than pleasure may dictate.

The growing taste for this refined field of agriculture warrants the devotion of some time on the part of young women to the principles and practices of at least a restricted field in horticulture. A special class is taught that is adapted to the wants of students of this course.

LITERARY SOCIETY.—It has already been stated that the young women have organized a literary society. It is conducted on the same general principles as the young men's literary society is.

SHORT COURSE IN DOMESTIC ARTS.

The same reasons that led to the organization of a short course in Agriculture gave rise to the formation of a short course for those young women who desire to avail themselves of the distinctly technical work of the four years' course in Domestic Arts.

This course meets the demand of those who regard themselves as unable to pursue a longer course.

Those who are able to complete the full course are decidedly advised not to give way to temptation to abbreviate their studies and thereby the broader culture to be secured in this course.

Those entering this course must pass with a high grade the examinations required for the full course or have successfully passed through the preparatory years work of this College.

TWO YEARS' COURSE IN DOMESTIC ARTS.

FIRST YEAR.

Hour.	FIRST TERM.	SECOND TERM.	THIRD TERM.
1	Grammar,	Rhetoric.	Literature.
2	Arithmetic or Mental and Moral Science.	Sewing.	Sewing.
3	Sewing.	Book-keeping four w'ks. Fancy Work six weeks.	Fancy Work.
4	Drawing.	Dairy.	Horticulture.
5	Music.	Music.	Music.

SECOND YEAR.

1	Painting.	Painting.	Hygiene.
2	Chemistry.	Chemistry.	Social Ethics.
3	Botany ten weeks. Physiology seven weeks.	Physiology.	Botany.
		Cooking	Cooking
5 & 6	Fruit Canning and Laboratory.	Laboratory.	Laboratory.

SPECIAL COURSE IN COOKING.

A special course in cooking will be given in the winter term of each year to any woman desiring to perfect herself in this work. No examination will be required, as it is designed for those who from lack of opportunity or time have been unable to become proficient in this important art.

COURSE IN MECHANICAL ENGINEERING.

The growth of modern industrial arts springs from recent development of the sciences. Their pursuit rests, then, upon a knowledge of all the laws involved. This implies a systematic study of related sciences. The value of general intelligence and of mechanical skill finds striking illustration in the marketing of American mechanical productions in India and other countries, where labor is but one-twentieth of the rates paid here.

It is believed that the effect of a strong department of Mechanical Engineering will be, through its graduates, to stimulate the development of the mechanical industries in this Territory. The presence of masters of the science of mechanics and of men trained to a high order of skill in the art of mechanical construction, can but result in increasing the number and in elevating the character of our mechanical industries.

The increasing call for mechanics skilled not only in the use of tools but also in the methods of applying the underlying principles of mechanical construction is best testified to by the great demand made upon the mechanical courses of the various industrial colleges.

The time has arrived when the successful mechanic, constructor, inventor or designer must not only think for himself but must have his thoughts and calculations guided by laws established by recent calculations and investigations.

COURSE IN MECHANICAL ENGINEERING.

FRESHMAN YEAR.

Hour. FIRST TERM.	SECOND TERM.	THIRD TERM.
1 Grammar and Composition.	Rhetoric.	English Literature,
2 Higher Arithmetic.	Algebra.	Algebra.
3 German or either Music, Elocution, Business Ethics or Course in Reading.	German or Music, Elocution, Business forms Course in Reading and Drawing.	German or Music, Elocution, Physical Geography, Commercial Law, Business forms or Course in Reading.
4 Free Hand Drawing.	Mechanical Drawing.	Mechanical Drawing.
5 & 6 Shop Work.	Shop work.	Shop work.

SOPHOMORE YEAR.

1 Geometry.	Organic Chemistry.	Solid and Spherical Geometry. 4
2 Chemistry.	Physics.	Physics.
3 Higher Algebra.	Trigonometry.	Analytical Chemistry.
4 Mechanical Drawing.	Mechanical Drawing.	Surveying.
5 & 6 Chemical Laboratory. 3	Chemical Laboratory. 3 Physical Laboratory. 2	Mechanical Drawing. 2 Field work in Surveying. 3

JUNIOR YEAR.

1 Mechanics ten weeks. Heat seven weeks.	Principles of Mechanism. 3	Principles of Mechanism. 3
2 Analytical Geometry.	Calculus.	Calculus.
3 Hydraulics seven weeks. Descriptive Geometry ten weeks.	Metallurgy of Iron and Steel. 3 Mechanical Drawing. 2	Mechanical Drawing.
4 Theory of Pattern Making 2	Theory of Machine work 2 Mechanical Drawing. 2	Civil Government.
5 & 6 Pattern Making. 4 Foundry Practice. 1	Machine and Vice work in Iron.	Machine and Vice work in Iron.

SENIOR YEAR.

1 Analytical Mechanics.	Applied Mechanics.	Machine Design.
2 Steam Engine.	Steam Boilers. 3	English Literature.
3 Botany. 3	Political Economy.	Geology.
4 Electricity and Magnetism.	Valve gear.	Electricity Applied.
5 & 6 Mechanical Drawing and Experimental work in Engineering.	Mechanical Drawing and Experimental work in Engineering.	Thesis work.

It will be seen by the course of study that students are given a thorough training in higher mathematics, Physics and Chemistry, which involve the underlying principles of all modern investigations. They are also given three years of training in the use of tools and of principles of construction in both wood and metal, including bench-work in wood, forging of iron and steel, pattern making, foundry practice, machine work and vise work in iron. In these departments, the purpose is to include as many principles for instruction as it is possible to do in the time at command, while at the same time insisting upon accuracy of work and the proper care of tools. The exercises in the shops are two hours daily.

The last two years will be devoted largely to the study of the underlying principles of machine construction and to actual work in designing. Steam and steam valves and valve movements, the economy effected by the use of high pressure

steam in the compound engine, will be thoroughly investigated and calculated. A careful study will be made of the different forms of steam boilers, their construction and the materials used in them. The study of the steam engine and steam boiler is of vast importance, as by ignorance they may be converted from the most economic to the most wasteful of prime movers.

The properties of iron and steel, their strength and adaptability will be carefully investigated. Ten weeks will be given to the study of the properties and location of the various ores of iron, the fuel and refractory materials used in the conversion of the ore into iron or steel. It will be observed also that much attention is given to mechanical drawing, one of the prime requisites of a well educated mechanic.

The various departments of the mechanical Laboratory are equipped as follows: For bench-work in wood, wood turning and pattern-making; thirty benches and ten lathes with necessary tools, pattern makers, rip and cross cutting circular saw, band saw, and a variety of special tools.

For forge work; twenty power-blast forges with anvils, vises and all necessary tools.

For moulding: a commodious room with flasks and fittings for practical work in mouldings.

For machine work; 24x24 inches by 6 feet iron planer, 20 inch crank shaper, universal milling machine, two 14 inch engine lathes with various attachments, speed laths, 22 inch drill press, sensitive drill, emery grinder, grindstone, and special tools such as standard gauges, etc.

The machinery will be driven by an 8x25 inch Harris Corless engine which will also be used for experimental work in engineering. All of the equipment is of high quality with the latest improvements.

No charge will be made for use of appliances but a deposit will be required from which the cost of the material used will be deducted. This cost will be \$3.00 yearly for two years of the course.

The degree of B. M. E. (Bachelor of Mechanical Engineering) will be given to those who complete the course.

COURSE IN CIVIL ENGINEERING.

The purposes of this course need no explanation in a Territory pre-eminenty requiring the services of the Civil Engineer. The mining interests of Utah, the immense work to be done in irrigation engineering before the vast resources of water in the Territory are utilized, and the great work of a Territory just ready to develop its varied resources, fully demand this course in an industrial college for its people.

FIRST AND SECOND YEARS.—The first and second years are the same as the first and second years of the course in Mechanical Engineering.

JUNIOR YEAR.

Hour.	FIRST TERM.	SECOND TERM.	THIRD TERM.
1	Physics.	Principles of Mechanism.	Principles of Mechanism.
2	Analytical Geometry.	Calculus.	Calculus.
3	Hydraulics seven weeks. Descriptive Geometry ten weeks.	Descriptive Geometry. 3	Stereotomy.
4	Field Engineering.	Mechanical Drawing.	Civil Government.
5 & 6	Field practice.	Strength of Materials.	Field practice.

SENIOR YEAR.

1	Analytical Mechanics.	Mineralogy and Lithology.	Engineering Designs.
2	Mental Science. 9 Moral Science. 8	Metallurgy, Steam Engine and Steam Boiler.	English Literature.
3	Roads and Pavements.	Political Economy.	Geology.
4	Stability of Structures.	Astronomy.	Irrigation Engineering.
5 & 6	Experimental Work.	Experimenta work.	Thesis Work.

MINING AND IRRIGATION ENGINEERING.

A year each will be given to Mining and Irrigation Engineering in addition to the regular course in Engineering. The present wealth and the future prospects of Utah rest largely upon mining and irrigation. It is believed that this department of instruction can be made to serve the material interests of Utah to an eminent degree.

When we consider the vast debt due to engineering in countries where irrigation is far more nearly perfected than it is

here, when we reflect upon the great opportunities for water storage, the great waste of water under the present system of irrigation and the probable near approach of the time when the forces of nature will be used in raising and controlling irrigating waters, it is plainly the evident duty of the College to foster this science as far as it possibly can. The possible productive power of the water falling upon our water sheds it is believed, and probably justly so, is far greater than it is ordinarily understood to be. The extensive mineral resources of the Territory will, in their development in the near future, sustain a large and prosperous population. This population will call for the full agricultural resources of our valleys. This in turn will stimulate the husbanding of our water resources.

This College seeks to educate men within the borders of Utah who will be capable of developing this vital interest.

DEGREE FOR COURSE IN CIVIL ENGINEERING.

On the satisfactory completion of the course in Civil Engineering the degree of B. C. E. (Bachelor of Civil Engineering) will be conferred.

COMMERCIAL COURSE.

The Congressional law seeks to aid the "Industrial Classes." Business men and their agents represent a class of large importance, and any aid that the schools can render them is due them; nor will any advantage that the schools may confer be confined to this class, for all citizens are interested in perfecting our system of exchanges. Commercial knowledge increases the accuracy of methods and widens the judgment and field of view of business men, and is therefore a power to its possessor.

A distinguished judge has stated that nine-tenths of the failures in business that have come before the court over which he presided, were accompanied by poorly kept books. Business requires a wide mass of information beyond mere book-keeping. It is believed that acquaintance with the forms and the principles involved in trade to one about to enter it, whether as an agent or as principal, will prove of value both to the merchant and to the public.

COMMERCIAL COURSE.

FIRST YEAR.

Hour.	FIRST TERM.	SECOND TERM.	THIRD TERM.
1	Grammar.	Rhetoric.	English Literature.
2	Arithmetic.	Spelling.	Grammar.
3	Business and Social Ethics and Manners.	Book-keeping.	Correspondence.
4	Type-writing.—Optional.	Type-writing.—Optional	Type-writing.—Optional
5	Business Penmanship.	Business Penmanship.	Business Penmanship.

SECOND YEAR.

1	Book-keeping.	Book-keeping.	Book-keeping.
2	Book-keeping.	Book-keeping.	Book-keeping.
3	Commercial Law, Business and Legal Forms.	Political Economy.	Civil Government.
4	Commercial Arithmetic.	Commercial Arithmetic.	Commercial Arithmetic and Rapid Calculation.
5	Stenography.—Optional.	Stenography.—Optional	Stenography.—Optional

REMARKS.

In order to secure its success and to insure the other courses against injury from those who are inclined to get a mere smattering knowledge of book-keeping and a little grammar, and then to pass out into the world as students of the College, it has been determined that those desiring the advantages of any of its studies must take the full course or pass a critical examination in each study. It certainly is for the interest of students to make a thorough preparation if their aim is high.

The obvious utility and bearing of most of the studies is so clear that remarks touching them are uncalled for.

GRAMMAR AND ENGLISH LITERATURE.—To secure a first-class clerkship in this age it requires a thorough knowledge or command of good English. Business and professional men find that a knowledge of capitalization, punctuation, of grammatical construction and even of good diction is a commercial power, and whether they possess it or not they find it necessary to rely upon clerks, when their business is a large one, for the construction of creditable letters. Grammar is therefore given a prominent place in this course.

United States History, Geography, Civil Government, Business Ethics, and Political Economy are deemed important acquisitions to either a business man or his aids. They give knowledge of the genius of our people, the spirit of their laws, of the moral code that governs in honorable business transactions and of the great laws that underlie the commercial growth of a nation and upon which its laws should be based.

Business men are active factors in the national existence and find that their purposes and commercial powers are widened by knowledge in the fields covered by the studies named.

TECHNICAL STUDIES.—These studies are in charge of a man of business experience. The principal objection that the business man of to-day finds to the Business College graduate is that he is drilled too much in theory and not enough in practice. To overcome this, book-keeping is taught throughout according to a system of actual business. Each student rents his own place of business, deposits money in the bank, buys and sells merchandise on all kinds of terms, thereby bringing into daily use such business forms as notes, drafts, checks, bill heads, statements, shipping invoices, account sales, receipts, deposit slips, certificates of deposit, mortgages, deeds, leases, insurance policies, bills of exchange, and bills of sale.

He will be keeping books, according to the shortest and most approved methods, with various kinds of business, such as general merchandising, grocery, dry goods, clothing, boot and shoe, hay and grain, coal, jobbing, commission, brokerage, manufacturing, conducting joint stock companies, corporations, etc.

It will be observed that no two students' books are alike. Each one is buying and selling on his own account and recording his own transactions, and is relying upon his own judgment and the guidance of his instructor.

Banking and business counters afford the students opportunity for practice in banking exchange and for the use of the various instruments that enter into business accounts and transactions. Type-writing and phonography are taught by one who is in daily business practice. This course is more complete than it is usually made by commercial colleges. The aim of the college is to do thorough work in all of its departments. To enter this Course applicants must pass the same examination required for entrance to the other College Courses and in addition United States History.

Those passing the examination of the Preparatory Course of this College will be admitted without further examination.

DIRECTION TO STUDENTS.

Logan is reached over a branch of the Union Pacific formerly known as the Utah and Northern R. R. Two passenger trains connect with Logan daily.

New students will be examined on Thursday and Friday, September 1st. and 2nd., for entrance to College.

On passing their examinations students will be directed to the proper officer to receive their entrance fees.

The receipt of the officer in question will be shown to the Secretary of the Board of Trustees, who will sign the same and enroll the name of the bearer, and record certain required data on his books.

This receipt will then be taken to the President of the college who will issue a class card containing the course of studies that may be selected by each student.

This class card will be shown to each Professor under whom the studies are to be taken, for class enrollment.

The card must be returned to the Secretary of the Faculty within three days of its receipt, or a demerit of five for each day that it is withheld will be given, after the expiration

of the three day's limit. If retained over one week the student will be dropped from his classes.

On entering for the second and third terms the cards will be secured from the Secretary when the studies will be filled out by the President, and signed by the Professors, and the card returned to the Secretary, as before.

For further particulars address the President of the Faculty.

EXAMINATIONS.

Examinations for admission to the full College Courses will cover Arithmetic to percentage, the Elements of Grammar, Geography, and the elementary branches taught in our common schools.

To enter the Preparatory Department students will have to pass in Arithmetic to fractions on the plan of Harper's Second Book and in simple sentences in Grammar.

Students passing in the Preparatory Department of this College will be admitted to the College Courses without further examination.

COLLEGE CHARGES.

Tuition is free.

Five dollars will be charged as an entrance fee for each year of the College course. For a single term for irregular students the charge will be three dollars. This sum is in lieu of the charges ordinarily made at colleges for library and other fees, so that the Library, Museums, etc., will be free to students.

In the chemical laboratory, work shops, and cooking rooms, students will be charged for the cost of the materials actually used up by them in their exercises. This charge will only be made for the terms when the materials are used. This cost will vary from \$2.00 to \$3.00 per year.

Board at the new Club-house will cost not over \$2 per week. This cost will include fires and lights but not room rent. The room rent, which will be 50 cts., per week is used in paying the Matron, the breakage of dishes and wear and insurance of the building.

The character of the board is controlled by students who room at the Club-house and therefore the cost is determined by their wishes.

The system works admirably. It has already been demonstrated that plain but good, substantial board can be furnished at \$2 per week.

Students boarding at private homes can secure board at from \$3 to \$3 50 per week. Students are neither required nor urged to board at the Club-house.

REQUIREMENTS AND DISCIPLINE.

1. Evidence of good moral character must be furnished when required. Daily attendance at Chapel Exercises is required. These exercises will be wholly devotional and completely non-sectarian. They are conducted by the Faculty and in part by members of each of the churches represented in Logan, but wholly as worshippers.

2. Students are forbidden to enter saloons. On the first infraction of this rule the student disobeying it will be called before the faculty. On the second infraction the fact will be stated to the school. The third infraction will result in expulsion from the College.

3. Non-resident students, under twenty-one years of age, are required to attend the church of their choice on Sundays during day service. Students bringing from their parents a written request to be excused from church attendance will not be required to comply with this rule. When students do not bring a request to be excused from church attendance it is assumed that the parents desire the faculty to enforce their wishes in this respect. This assumption is made because it is known that parents generally desire that their children attend church; and as it is impracticable to communicate with every parent this method is adopted to meet their desire.

4. Students will be required to take four full studies, unless excused from one of them by the Faculty.

5. Prompt attention to all duties assigned to him will be required of each student. Gentlemanly deportment towards all with whom they come in contact, whether of the Faculty, fellow students or citizens, will be expected. Any failure in this direction will become, when this aggregate reaches a given standard, a matter of record and of decided Faculty action.

6. All students not excused from full work by the Faculty are required to take four studies.

7. Students having no class during any hour from 9 a. m. to 1 p. m., shall if they remain upon the college grounds, pass the time in their boarding rooms, in the library, or some other place assigned them by the President.

Any student failing to comply with this regulation for the full hour will be demerited.

8. A student absent from either chapel or class-room will receive five demerits.

These demerits will be cancelled if a satisfactory excuse is rendered within three days after return of a student who has been absent. If required the recitation missed shall be made up.

9. Students will be excused from Chapel exercises on written request of parents or guardians.

10. Misconduct in class may be demerited to the extent of five demerits. More demerits may be added by Faculty action.

11. Misconduct in chapel or college halls or on college grounds may be demerited by the President or by Faculty action.

12. Whenever in the opinion of the Faculty the number of demerits warrants, the student and his parents or guardian shall be notified of his unsatisfactory conduct. When the number of demerits given to any student during any school year reaches 100 the student shall be expelled.

13. A perfect recitation shall receive a mark of 100, a monthly class record of less than 60 shall drop a student from a class. An average of less than 60 for all classes excludes from continuing in college.

14. The Faculty shall make a weekly report to the Secretary of the Faculty of the demerits given and a term report of the class grades of students.

15. Scholarship marking will be as follows:

Above 95 per cent	-	-	-	Distinction.
90 to 95	"	-	-	1st Grade.
75 to 90	"	-	-	2nd Grade.
60 to 75	"	-	-	Pass.

The passing grade in the Business course will be 80. Less than 90 will be second grade. Above 90 is regarded as in the other Courses.

Students will not be informed of their actual standing, but their grades on the above classification will be given them.

Grades will be determined as follows:

Daily recitation will count one-third.

Inter-term examinations count one-third.

Final examinations count one-third.

16. Students not entering their classes within five minutes after the bell rings shall receive two demerits unless they render a good excuse.

17. Absence of a professor five minutes after the bell rings excuses a class for the hour.

At the ringing of the bell the students have the privilege of leaving the class-room.

18. Students cannot drop or change a class without Faculty action.

19. No society bearing the name of the college or purporting to emanate from it shall be organized without the consent of the Faculty and the approval by it of its Constitution and By-Laws.

20. Injury to college property by students shall be paid for to the extent of the injury, and if the injury be malicious the student shall pay double the amount.

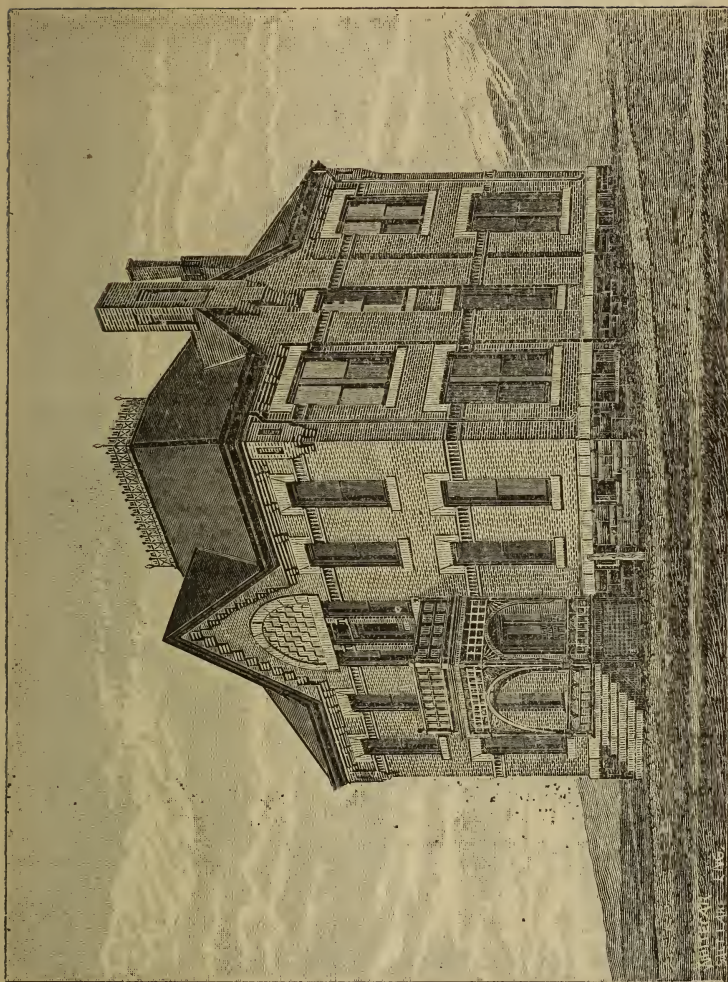
21. The use of tobacco in any form on the college grounds is prohibited.

22. Students from other towns boarding or living in Logan must obtain excuses from the President in advance, when they desire to leave town during term time.

23. No excuses for absences are accepted unless for sickness certified to by parents or boarding mistress, or for detention at home by parents for necessary reasons to which parents or guardians certify.

24. Misconduct anywhere outside of the class-room exercises or beyond the college grounds, will be cause for demerit.

25. For the first offense of cheating in examinations, a student shall receive twenty-five demerits, and for a second offense the student will be suspended.



EXPERIMENT STATION.

Bulletins of the Experiment Station can be had free of charge on application for the same. They are published once a month.

STUDENTS.

Adamson Peter, Jr.,	American Fork
Ainscough John Alfred	Smithfield
Allen Thomas Lonsdale, Jr	Coalville
Allison Carl	Coalville
Anderson Anton Edward	Logan
Anderson John August, Jr	Ephraim
Anderson Mary..	Logan
Anson George Daniel	Blackfoot, Idaho
Amussen Enoch Frederickson	Logan
Ballif Adeline Marie	Logan
Ballif Joseph Fenelon	Logan
Barlow Pamela	Bountiful
Barrett Arthur	Logan
Beck John Forsyth	Spanish Fork
Bell Adelbert	Logan
Bell Alfred James	Logan
Bell Effie	Logan
Bell George	Logan
Benson Elise	Preston, Idaho
Berntson Vendla	Logan
Berryman Charles William	Blackfoot, Idaho
Bingham John Moss	Trenton
Bitter Alfred	Logan
Blyth Charles McKay	Salt Lake City
Blyth John Anderson	Vernon
Bluemel Charles Burton	Logan
Boley Henry Chipman	American Fork
Boyer Ernest Marcellus	Springville
Boyer Henry Guy	Springville
Boyer Mark	Springville
Boyer Myron Augustus	Springville
Boyden Walter Mitchell	Coalville
Box 'Trieste	Brigham City
Broberg Ernest John Ferdinand	Logan
Bromley Willis Michael	American Fork
Brown Annis Bisbee	Ogden
Brown Bruce Leigh	Ogden
Brown Frances May	Logan

Brown John Howe	Provo
Brown Mary Anderson	Ogden
Brown Nellie	Paris, Idaho
Browning James	Ogden
Buelher Louisa	Logan
Bunce Emma	Logan
Butler Edgar	Logan
Butler Ella Lenora	Trenton
Caine Florence Nightingale	Salt Lake City
Caine Margaret	Salt Lake City
Calder Etta	Salt Lake City
Canfield Israel Critchlow	Ogden
Cantwell Ambrosine	Millville
Cantwell Edith Lilian	Millville
Charles John Griffith	Logan
Chase David Nelson	Centreville
Ohase Gus	Springville
Christensen Alfred Anton	Newton
Clark Frederick George	Ogden
Clark William Jerome	Ogden
Clawson Charles Cyrus	Providence
Cleveland Stafford Charles	St. Charles, Idaho
Cole Gilbert William	Logan
Cole Henry	Logan
Cole Sarah Elizabeth	Logan
Collings David Owen	Monroe
Cook Albert Charles	Evanston, Wyo
Cook St. Elmo	Logan
Cragan Thomas William	Smithfield
Cragan Wallace	Smithfield
Crandal Marshal Isaac	Springville
Crittenden Oscar	Hoytsville
Crockett Delia Sophia	Logan
Crockett Fred Waldo	Logan
Crockett Henry Wallace	Logan
Crossley Priscilla	Ogden
Culmer William Fred	Salt Lake City
Deal Romanzo Algenon, Jr.	Springville
DeMott Amelia	Logan
Dougall William Bernard	Springville
Edlefsen Charles	Logan
Edlefsen James Lawrence	Logan
Edwards John Henry	Logan
Eldredge Ira	Coalville

Eliason Elnora.....	Logan
Eliason Phoebe.....	Logan
Ellis James Henderson.....	Logan
Erwin Robert Wesley.....	Fulton, Mo
Farley Emily Pauline.....	Ogden
Farr Joseph Albertus.....	Ogden
Farr Harry.....	Logan
Farr Winslow.....	Logan
Farrell Laura.....	Logan
Fife Wallace.....	Providence
Fisher Albert Clarence.....	Richmond
Fowles Joseph Henry.....	Hooper
Frederick Hysum.....	Providence
Froerer George.....	Eden
Gallagher David Isaac.....	Logan
Gamble Edith Virginia.....	Millville
Goodwin Frank Chambers.....	Logan
Greenhalgh Franklin.....	Bloomington, Idaho
Groesbeck William Jesse.....	Springville
Hadfield James Henry.....	Smithfield
Hadfield Sarah Lizzie.....	Smithfield
Hall Henry Clinton.....	Logan
Hammond Daniel Arnold.....	Providence
Hammond George Miller.....	Providence
Hansen Charley Willard.....	Logan
Hanson Clarence.....	Logan
Hanson George David.....	Providence
Hanson James Edward.....	Providence
Hanson Selema Hortense.....	Logan
Hayball Alfred Hyrum.....	Logan
Henderson William C.....	Woodruff
Herrick Lester Alonzo, Jr.....	Ogden
Holden Edward Hezekiah.....	Logan
Hogan Arthur John.....	Ogden
Holt Lulu.....	Millville
Holt Willia.....	Millville
Hopkins Martha Cordelia.....	Blackfoot, Idaho
Hopkins Mary Alice.....	Blackfoot, Idaho
Hopkins Robert Lewis.....	Blackfoot, Idaho
Hoyt John Burbridge.....	Kamas
Hoyt Martha.....	Kamas
Hughes George.....	Spanish Fork
Hurst Leoline.....	Logan
Hutchings Lawrence James.....	Lehi
Hyde Emma.....	Logan

Izatt Alexander Samuel.....	Logan
Izatt Jannetta Williamson.....	Logan
Jacobson Caroline.....	Logan
Jenkins Gethin Daniel.....	Spanish Fork
Jenkins Mary Elizabeth.....	Malad, Idaho
Jensen Alfred.....	Trenton
Jensen Clara.....	Trenton
Jensen Henry Ole.....	Manti
Jensen Lydia Racine.....	Manti
Jensen Oscar.....	Logan
Johnson John.....	Logan
Johnson Martha.....	Logan
Johnson Mary Ellen.....	Blackfoot, Idaho
Johnson Mitchel Raymon.....	Nampa, Idaho
Johnson Niels Peter.....	Logan
Johnson Oscar August.....	Logan
Johnson Thomas Jefferson.....	Blackfoot, Idaho
Jones Frederick Edmund.....	Evanston, Wyo
Jones John Henry.....	Montpelier, Idaho
Jones Llewellyn Morris.....	Spanish Fork
Kent Mary.....	Logan
Kewley Emma.....	Logan
Kilgore Dora.....	Logan
Kimball Ernest.....	Logan
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Larson Barbara Dorothea.....	Logan
Larsen Christian.....	Logan
Larsen Eliza Ann.....	Logan
Lechtenberg Karl.....	Logan
Lee Ernest Albert.....	Springville
Lewis Enoch Hyrum.....	Logan
Lewis Walter Beers.....	Mesa, Arizona
Lundberg Victoria.....	Providence
Maddison Walter Ernest.....	Providencee
Magleby Parley.....	Monroe
Malin Charles Milburn.....	Hoytsville
Maughan Jennie.....	Petersboro
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McDonald McRae.....	Salt Lake
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McLeay Ernest Cleveland	Ogden
McMurdie Lillian Kay	Paradise
McMurdie Sarah Darling	Paradise
Meikle John Henry	Smithfield
Mendenhall Seymour Lovel	Springville
Merkley Lucy	Logan
Merrill Harry	Logan
Merrill Lewis Alfred	Richmond
Merrill Louis Edgar	Richmond
Merrill Ralph	Smithfield
Merrill Willie Norville	Logan
Mills Richard Isaac, Jr.	Logan
Moffatt Millen Atwood	Logan
Moody Fred Walter	Ogden
Morehead Daniel Clayton	Smithfield
Morehead Marie	Smithfield
Morgan Etta May	Paris, Idaho
Murphy Elizabeth	Logan
Needham Ernest Rupert	Logan
Neilson Peter	Logan
Nelson Joseph Bent	Logan
Nelson Joseph Rastus	Spanish Fork
Nibley Alexander	Logan
Nibley Charles Wilson	Logan
Nielsen Brigham Enoch	Monroe
Nielson Ella	Smithfield
Nyman Andrew, Jr.	Logan
Odell Joseph	Ogden
Olsen John	Logan
Osborn Robert Lee	Blackfoot, Idaho
Packard Alpheous Oresta	Springville
Packard Chillian Fay	Springville
Passey William Boyd	Mesa, Arizona
Patrie Walter Edward	Blackfoot, Idaho
Peterson Fred Gustave	Logan
Peterson Ida	Logan
Peterson John Adolph	Logan
Pitkin Agnes Jannett	Millville
Pitkin Leonard Curtis	Millville
Pitkin Mary Jane	Millville
Pitkin Sarah Ann	Millville
Pitkin Willard White	Millville
Porter Arthur	Logan

Preston Lee	Logan
Pugmire Leroy Rich	St. Charles, Idaho
Pyper Alexander Crouixshanks	Salt Lake City
Pyper Walter Thomas	Salt Lake City
Ravsten John	Trenton
Rawlins David William	Cardston, Canada
Reese Homa	Logan
Reynolds Dwight Velasco	Ogden
Rice Nanna	Logan
Rich Sarah Jane	Montpelier, Idaho
Rich Susannah Lenore	Montpelier, Idaho
Richman Mary S.	Logan
Ririe Hyrum	Eden
Robbins Mary	Logan
Robertson Alexander	Spanish Fork
Robison Birt	Logan
Rosenbaum David	Brigham City
Rosengreen John Hyrum	Logan
Roylance Leon	Springville
Roylance George Riley	Springville
Sanborn Alice	Logan
Sanborn Harry Edgar Wilson	Logan
Shurtliff Franklin Marion	Logan
Shurtliff Samantha Evaline	Logan
Simmonds Andrew Charles	Trenton
Smedley Frank Bailey	Bountiful
Smith Harriet	Logan
Smith James McNeil	Logan
Smith John Mercer	American Fork
Smith Mary	Smithfield
Smith Richard	Logan
Smith Willis	Smithfield
Snyder Bertha	Logan
Squires John Henry	Logan
Sterling Hyrum	Spanish Fork
Stewart Carrie Julia	Logan
Stowell William Barnum	Logan
Tarbet Thomas Albert	Logan
Taylor George Thomas	American Fork
Teasdel Albert David	Salt Lake City
Thackeray Eliza	Croyden
Thackeray Margaret Ann	Croyden
Thackeray Mary Jane	Croyden
Theurer David Orson	Providence

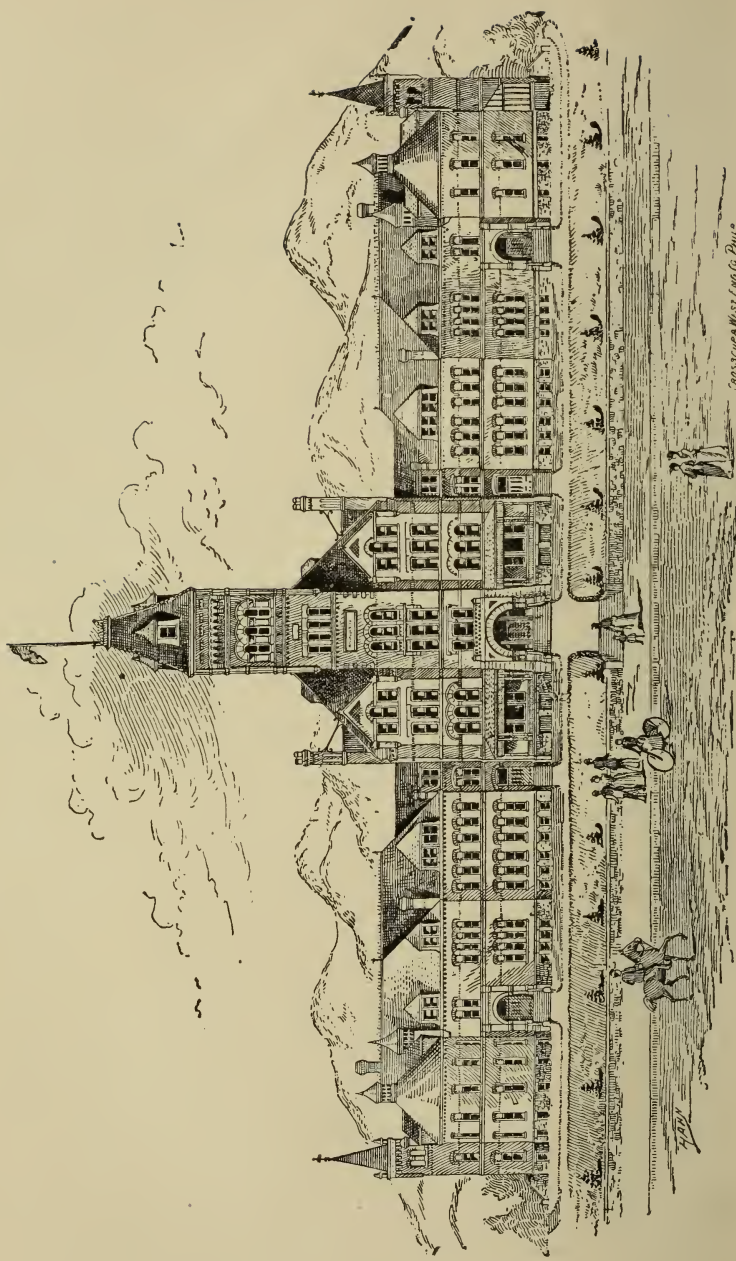
Thomas Alma.....	Logan
Thomas Joseph.....	Logan
Thomas Nathan.....	Logan
Thomas Willard	Logan
Thompson Mabel.....	Logan
Thurgood Lillie Elizabeth.....	Bountiful
Tibbitts Benjamin, Jr.....	Providence
Toolson George.....	Smithfield
Toolson John Peter.....	Smithfield
Torgeson George Albert.....	Logan
Travers William Jasper.....	Salt Lake City
Weaver Budd Daniel	Deep Creek
Weaver Ida.....	Deep Creek
Weekes Sarah Ann.....	Smithfield
West Frederick Dick.....	Logan
White Mrs. Alice.....	Logan
Whitney Mary Elvira	Millville
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Wilkins Lorenzo Bellew.....	Provo
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Williams Maggie.....	Montpelier, Idaho
Williamson Benjamin.....	St. Charles, Idaho
Wilson Lucius Aaron.....	Brigham City
Wilson Richard.....	Eden
Wilson Rosa May.....	Eden
Wood Collin.....	Willard
Wood George Harmon.....	Springville
Wood Henry Gideon.....	Springville
Wood Ralph Eugene.....	Springville
Wright George Frederick.....	Logan
Wright Joseph Warren.....	Hyrum
Young Joseph Angell	Manti
Zweifel Richard David.....	Providence

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ANNUAL CATALOGUE

OF THE

AGRICULTURAL COLLEGE

OF UTAH

1894-5

LOGAN, UTAH

CALENDAR FOR 1894-5.

First Term Opens.....	Tuesday, September 4, 1894.
First Term Closes.....	Friday, December 21, 1894.
Second Term Opens.. ..	Tuesday, January 3, 1895.
Second Term Closes.....	Friday, March 15, 1895.
Third Term Opens.	Tuesday, March 19, 1895.
Third Term Closes.....	Wednesday, June 5, 1895.

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A. A. MILLS, B. Sc. Superintendent of Farm Experiment Work.
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S. FORTIER, C. E. Consulting Irrigation Engineer.
F. B. LINFIELD, B. S. A. Dairy Investigator.
JAMES DRYDEN Clerk and Stenographer
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Instructor in Sewing.

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Instructor in Drawing and Shop Work.

WILLARD S. LANGTON,
Instructor in Preparatory Department.

HISTORICAL STATEMENT.

The Agricultural College of Utah was organized by an act of the Territorial Legislature, approved March 8, 1888, accepting the provisions of an act of Congress introduced by Hon. Justin S. Morrill, of Vermont, and made a law July 2, 1862. This act was supplemented by an act passed March 2, 1888, founding and endowing Agricultural Experiment Stations as departments of these colleges, and by a subsequent act passed August, 1890, further endowing them.

The National act of 1862 gave 30,000 acres of land to each State, for each member of its Congressional delegation. This land will become available to the Agricultural College when Utah is admitted to Statehood. The act of 1888, endowing Agricultural Experiment Stations, gave \$15,000 annually for research in agriculture. The National act of 1890 gave \$15,000 for the purpose of instruction at Agricultural Colleges for the year following the date of the passage of the act, this sum to be increased one thousand dollars per year until the total annual appropriation reaches \$25,000. The sum received from the National Treasury for the present year will be \$20,000.

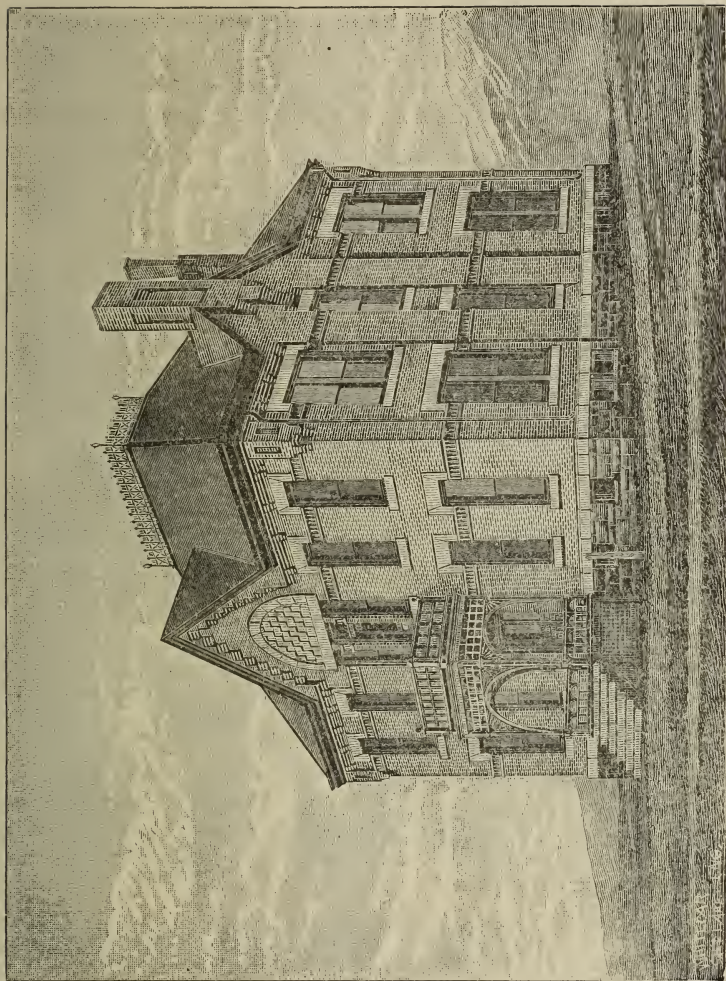
The Legislature that founded the institution gave \$25,000 for buildings. The county of Cache and the town of Logan gave one hundred acres of land on which to locate the College. The Legislature of 1890 appropriated \$48,000 for apparatus, for the employment of teachers and for the construction of a house, barn, two laborers' cottages and an experiment station. The Legislature of 1892 gave \$108,000 for an addition to the College building, for two houses, for apparatus and for salaries of teachers. The Legislature of 1894 appropriated the further sum of \$15,000 for purchase of apparatus, for a greenhouse, for a veterinary laboratory and for the employment of teachers.

THE PURPOSES OF THE COLLEGE.

The purposes of these Colleges are seen in the following quotations from the National and Territorial laws. The original Act of Congress founding the Agricultural Colleges says: "And the interest of which shall be inviolably appropriated by each State, which may take and claim the benefit of this act, to the endowment, support and maintenance of at least one College, where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, * * * in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

The National act establishing the Experiment Station department of the College defines at length the duties of the department:

SEC. 2. That it shall be the object and duty of said Experiment Station to conduct original researches or verify experiments on the physiology of plants and animals; the diseases to which they are severally subject, with the remedies for the same; the chemical composition of useful plants at their different stages of growth; the comparative advantages of rotative cropping, as pursued under a varying series of crops; the capacity of new plants or trees for acclimation; the analyses of soils and water; the chemical composition of manures, natural or artificial, with experiments designed to test their comparative effect on crops of different kinds; the adaptation and value of grasses and forage plants; the composition and digestibility of the different kinds of food for domestic animals; the scientific and economic questions involved in the production of butter and cheese; and such other researches or experiments bearing directly on the agricultural industry of the United States as may in each case be deemed advisable, having due regard to the varying conditions and needs of the respective States or Territories



EXPERIMENT STATION.

The National act of 1890, further endowing agricultural colleges, defines the limits of the application of the money therein appropriated in the following language: "To be applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural and economic science, with special reference to their applications in the industries of life, and to the facilities for such instruction."

The Territorial law founding the institution reaffirms the purpose of the National act, and in addition contains the following language:

SEC. 12. The course of instruction shall embrace the English language and literature, mathematics, civil engineering, agricultural chemistry, animal and vegetable anatomy and physiology, the veterinary art, entomology, geology, and such other natural sciences as may be prescribed, technology, political, rural and household economy; horticulture, moral philosophy, history, bookkeeping, and especially the application of science and the mechanical arts to practical agriculture in the field.

The Legislature very wisely made strict provisions against a sectarian or partisan management of the institution in Section 10 of the law, which reads as follows:

SEC. 10. In the appointment of professors, instructors and other officers and assistants of said college, and in prescribing the studies and exercises thereof, and in every part of the management and government thereof, no partiality or preference shall be shown by the trustees to one sect or religious denomination over another; nor shall anything sectarian be taught therein; and persons engaged in the conducting, governing, managing or controlling said college and its studies and exercises in all its parts, shall faithfully and impartially carry out the provisions of this act for the common good, irrespective of sects or parties, political or religious.

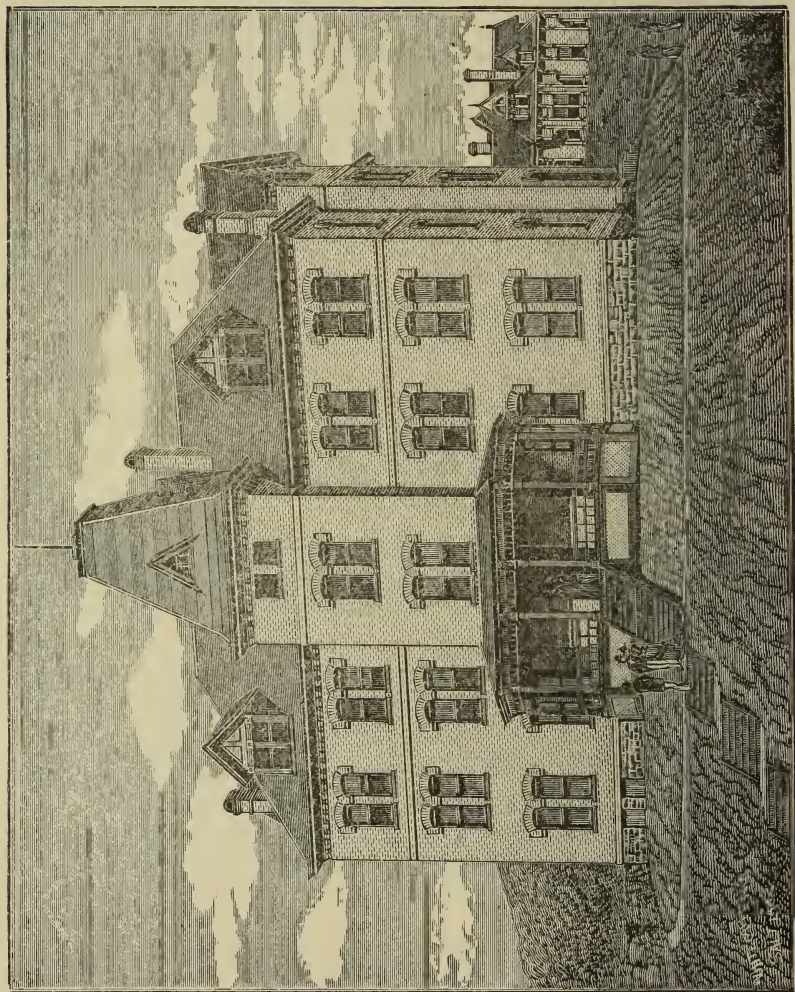
The intention of the nation and of the Territory, in establishing this College, is clear beyond the possibility of misconstruction. It was founded in the interest of the industrial classes in the several pursuits and professions of life, to give not alone a technical education, but, in the language of the law, a "liberal and practical education." It sought to place within reach of the

producing classes, an education that the older institutions, as a rule, had made no provisions for. It was the clear intention of Congress to give special prominence to agriculture and mechanic arts in the order mentioned, and for obvious reasons. The former represents the wealth-producing class of primary importance, the latter that class of next importance to the state.

The instructional policy of the College is in consonance with the letter and the spirit of the laws upon which it was founded. Its courses of instruction represent the five great avocations of the people of Utah, and combine general education with industrial education. This system has been found to meet the wants of our industrial classes.

LOCATION OF THE COLLEGE.

The College is located at Logan, a rural city of 5000 population. It is characterized by that freedom from vice and distraction from study that mark the typical college town. Logan is the capital of Cache County, and commercially of Cache Valley. Cache Valley is about sixty miles long by from ten to twelve miles wide, completely surrounded by the Wasatch Mountains, forming one of the most beautiful valleys in the world. The College is located on an upper bench, in a position that overlooks Logan and commands a view of the entire valley and its surrounding mountain ranges. The beauty of the location is unsurpassed, and, perhaps, unequaled by that of any other College in the country.



BOARDING HOUSE—See Page 15.

COLLEGE EQUIPMENT.

MAIN COLLEGE BUILDING.—This is one of the largest college structures in the country, being 342 feet long by 190 feet deep in the center. The building is completed, as shown in the frontispiece, except eighty feet square, or about one-sixth in front.

It contains well-ventilated recitation rooms for the several departments, and working or practical exercise rooms, ample in dimensions and complete in their conveniences for the workshops, cooking, sewing, household, dairy, laundry, engineering, agricultural and business departments. It contains laboratory, museum, library and gymnasium rooms and a military drill hall of ample size, each being some eighty feet square. Its audience room, or chapel, will hold 1500. All the rooms are light and pleasant and the halls wide and roomy, extending on each floor the entire length of the building. The building is equipped with the best modern furniture.

A boarding house is connected with the College. It contains thirty-three rooms. These rooms are 12x14 feet, exclusive of a good closet. Each room has registers for ventilation, and is furnished with a looking glass, a full set of chamber ware, a wash stand, table, chairs, and either a beadstead or two cots. In addition to the rooms for the students there are rooms for the matron and for cooks, a fine, large students' reception room, 19x27 feet, a model kitchen, a dining room, a pantry supplied with modern conveniences, a laundry room and bath rooms.

FARM BUILDINGS.—A model barn is connected with the department of agriculture. It contains a silo, a root cellar, an engine room, quarters for swine, for sheep, for cattle, for horses, for hay and other coarse fodder; for grain, for tools and for horticultural uses.

A farm house with dairy rooms associated with it, illustrates the modern conveniences that are found in connection with modern farm houses.

Three laborers' cottages and a house for the farm superintendent are located on the grounds of the College.

All the buildings are new, well adapted to their purposes, and of credit to the Territory.

Connected with the above buildings is the Experiment Station building, where experiment work is constantly in progress.

LIBRARY.—The library contains several hundred pamphlets and 3000 books that have recently been very carefully selected. They cover the fields of thought to which it will be most useful for students to turn their attention—general literature, travel, biography, political economy, sociology, metaphysics, history, fiction, poetry, and the technical works of the several departments.

The library room contains periodicals that represent the leading lines of modern thought. It is a well equipped section of the College work and free to College students.

MUSEUM.—A collection for a general museum upon which the several departments of the College may draw for means of illustrating class-room teachings, has already acquired importance. A fund has been devoted to this feature of the College work.

APPARATUS.—Each of the five departments of instruction has a collection of apparatus and materials for illustration. Under the explanation of each course of instruction will be found a statement of the means provided for illustrating the subjects taught. About \$35,000 has been expended, or is being expended, for means of illustration.

FARM.—Eighty-five acres of land are used for instruction in the art and science of agriculture and of horticulture. Three and one-half acres of ground, located close to the College building, are set aside for the sole use of students for athletic sports.

COURSES OF STUDY.

The College work includes five distinctive lines of instruction, four special courses and a Preparatory Department.

1. Course in Agriculture.
2. Course in Domestic Arts.
3. Course in Mechanical Engineering.
4. Course in Civil Engineering.
5. Business Course.

The special courses are as follows:

1. Three years' Course in Agriculture.
2. Irrigation Engineering.
3. Two years' Course in Domestic Arts.

In addition to these special courses there have been organized two courses of winter lectures, covering ten weeks each, namely: A course of lectures for the Agricultural Department and a course of lectures for the Domestic Arts Department.

The courses in Mechanical and Irrigation Engineering have Post Graduate Courses of one year each.

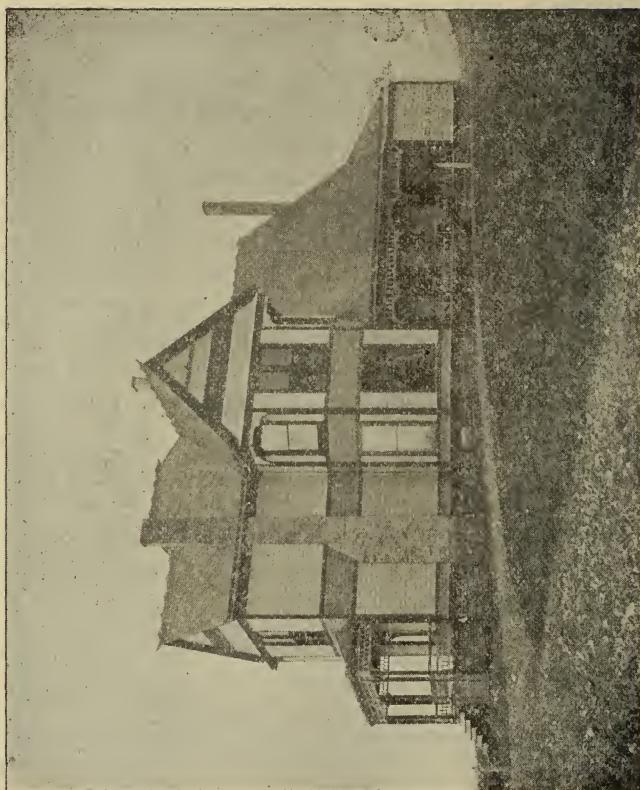
PREPARATORY DEPARTMENT.

Many of the settlements of Utah have barely passed their pioneer days. From such sections no great advance in education could be expected, and in some the schools are quite primitive. As a consequence, many young men and women who have had to work hard with their parents in the varied operations of home making, find themselves without the educational start which their integrity merits. They have given their time to the material progress of the Territory, and now feel that they are entitled to a share in its intellectual advancement. In some of the thinly populated districts schools are not regularly kept, and those that are do not provide instruction generally adapted to the age and wants of the class of whom we speak.

It, therefore, seems obvious that until these young people pass the time they may devote to school, justice demands some provision for them in our higher educational institutions. The College maintains a Preparatory Department for such students, and offers them the following studies:

Hour.	FIRST TERM.	SECOND TERM.	THIRD TERM.
1.	Penmanship.	Grammar.	Composition.
2.	Grammar. Military Drill.	U. S. History. Military Drill.	Arithmetic. Military Drill.
3.	Geography.	Arithmetic.	U. S. History.
4.	Orthography, 8 weeks. Reading, 8 weeks.	Physical Geography.	Physical Geography.

This preparation fits students for the several courses of college study.



FARM HOUSE.—See Page 15.

COURSE IN AGRICULTURE AND SCIENCE.

It has been said by a great poet that "All nature is but art unknown to thee." This being so, agriculture is the art of arts, for it unceasingly deals with nature and is thereby brought into daily contact with life and the sciences relating to life. In the management of soils and in the use of tools it comes in contact with physical and mechanical laws, and in the markets, with commercial and political laws. Very happily agriculture deals with more of the sciences than does any other industry, thereby causing agricultural education to become more nearly a liberal education than the education that is necessary to any other industry or profession. Very nearly all natural sciences are involved in farming, so that a well educated farmer is virtually liberally educated as a citizen.

In the following course of instruction very few studies are involved that are not essential to the most successful farmer. It may be well termed a course in the applied sciences.

Heretofore agriculture has been without guiding laws. It has been a "rule of thumb" business. It is now rapidly becoming the most learned of the industries or professions. Of its profundity there can no longer be any doubt. The inherent fascination of its living forms and of its complex and intricately balanced laws will yet attract to it the best talent, as it is the finest field for industrial gratification and for the development of the highest order of intellectual and physical manhood.

Statistical inquiry has shown that in the several countries of Europe the produce per acre is increased over that of the most illiterate countries by the increased ratio of the population that can read and write. The same fact is found to exist between the States of the Union. A single illustration of the general

law will be given. In 1860 fifty-three per cent of the population of France and nearly all the population of Germany could read and write. In the former country the crops were 18.50 bushels per acre while the latter yielded 22.05 bushels. Germany is a poorer country for agriculture than France, yet the yield is nearly twenty per cent more than that of France. Germany has more Agricultural Colleges and Stations, and erected them earlier.

FRESHMAN YEAR.

Hour. 9:00 to 9.55. Grammar.	Rhetoric.	Literature.
9.55 to 10.50. Arithmetic, 10 weeks. Algebra, 6½ weeks.	Algebra.	Algebra.
10:50 to 11:20. Military Drill.	Military Drill.	Military Drill.
11:20 to 12:15. Elocution, 2 Free Hand Drawing. 3	Elocution. 2 Freehand Drawing 3	Elocution. 2 Free Hand Drawing. 3
12:15 to 1:10. Manners and Morals. 2 Horticulture. 2	History of Agriculture. Farm Bldgs. & Fences. 3	History, description and management of Cattle, Horses, Sheep and Hogs. 3
2:10 to 4:00. Shop Work in Wood. 3	Shop Work in Iron.	Shop Work in Wood. 3

SOPHOMORE YEAR.

9:00 to 9:55. Botany. 3	Organic Chemistry.	Agricultural Chemistry.
9:55 to 10:50. Chemistry.	Physics.	Physics.
10:50 to 11:20. Military Drill.	Military Drill.	Military Drill.
11:20 to 12:15. Geometry.	Book-keeping. 3 Arg. Rhetoric. 2	Horticultural Work. 1 Surveying. 4
12:15 to 1:10. Essays and Arg. Rhetoric. 2 Horticulture. 2	Horticulture. 3	Botany. 2 Surveying. 3
2:10 to 4:00. Chemical Laboratory. 3 Horticultural Practice. 2	Chemical Laboratory. 3 Physical Laboratory. 2	Chemical Laboratory. 2 Physical Laboratory. 2 Botanical Laboratory. 1

JUNIOR YEAR.

9:00 to 9:55. Anatomy and Physiology.	Entomology.	Geology.
9:55 to 10:50. Botany.	History, description and management of Cattle, Horses, Sheep and Hogs. Stock Breeding.	Soils. Farm Machinery.
10:50 to 11:20. Military Drill.	Military Drill.	Military Drill.
11:20 to 12:15. Literature. 3	Logic. 4	Literature.
12:15 to 1:10. Zoology. 2 General History. 3	Physiology.	Civil Government.
2:10 to 4:00. Botanical Laboratory. 2	Agricultural Practice. 2 Mineralogy & Lithology 3	Farm Practice. 2 Mineralogy, Lithology and Geology. 2

SENIOR YEAR.

9:00 to 9:55. Dairying, Farm Crops and Irrigation.	Irrigation. Manures.	Thesis Work.
9:55 to 10:50. Psychology, 10 weeks. Moral Science, 6½ weeks.	Political Economy.	Veterinary Science.
10:50 to 11:20. Military Drill.	Military Drill.	Military Drill.
11:20 to 12:15. Veterinary Science.	Veterinary Science.	Farm Management. Animal Nutrition. Drainage.
12:15 to 1:10. Either German, French, Spanish, Veterinary Science and Physiology, or History of Civilization.	Either German, French, Spanish, Veterinary Science and Physiology, or Astronomy.	Either German, French, Spanish, Veterinary Science and Physiology, or Sociology.
2:10 to 4:00. Dairy Practice 3 Veterinary Laboratory 2 Music (optional). 1	Farm Practice. 2 Veterinary Laboratory 2 Music (optional). 1	Farm Practice. 2 Veterinary Laboratory 2 Music (optional). 1

The degree of B. S. (Bachelor of Science) is given to those who complete this course.

POST GRADUATE WORK.

Those completing the above course will have the privilege of any of the classes of the other courses. In addition, advanced work in Chemistry, German, Spanish, French, English, Physics,

Biology, Drawing and Music for a year; Botany three days in the week for a year; Horticulture two days a week for the year; Agriculture, and in other studies.

These studies are added to accommodate our rapidly increasing number of students who may desire advanced work and to obviate the necessity of the youths of the Territory going abroad to secure a more complete education in the direction that this College is teaching.

Aside from the fact that the four years' course is now one of the very strongest technical courses in Agriculture in the country, it becomes a good, strong, general science course when the added year is included.

The technical course in Agriculture brings into use seven specialists who deal directly with farm problems.

REMARKS.

AGRICULTURE.—An exercise a day for two years is given to technical instruction in agriculture. The greater part of the instruction is given by lectures and by field exercises, as very few works on agriculture are adapted to schoolroom study.

In these lectures are considered the history of the development of the art and science of agriculture; farm buildings and fences; farm implements—their development, care and use; the development and characteristics of the various breeds of cattle, horses, sheep and swine; the art and science of breeding; soils—their origin, classification and their physical laws; tillage of soils in its relation to the physical and chemical condition, and to moisture and to crops; manures—their composition, value, preservation, preparation and use; farm crops—their character, improvement, seeding, cultivation, harvesting, preservation; feeding—animal digestion, food value of crops and their combination for feeding to the several classes of animals, and the art of feeding; dairying—in all of its complex relations, and the application of the knowledge acquired to the art of organizing

a successful type of farming of a high order. Text books used: Horning's *Drainage for Profit and Drainage for Health*, Arnold's *Dairying*, Armsby's *Manual of Cattle Feeding*. For reference books, are used *Harris on Manures*, Stewart's *Sheep Husbandry*, Curtis on *Breeds of Domestic Animals*, and a list of other books too full to review.

The dairy work is in charge of one familiar with the art and science of dairying. This feature of the instruction in agriculture will be made prominent. Our Territory imports a large amount of the best grades of butter, notwithstanding it has an exceedingly favorable climate for the production and harvesting of foods fitted to produce these grades in their highest perfection.

Instruction in dairying will be given by lectures, supplemented by practical work in the dairy. The lectures will cover daily recitations for six weeks, the practice work in the dairy to occur three times a week for the same period. The lectures will discuss the elaboration, the composition, the fermentation and the testing of milk, and will be accompanied by presentation of the intricate and varied processes of butter and cheese making, closing with the discussion of the building, equipment and management of factories.

Successful dairying requires a thorough knowledge of the subtle changes that are constantly taking place in milk after it is drawn from the cow. This knowledge can only be gained by practical work in handling it.

The dairy department is thoroughly equipped for the operations of milk testing, butter and cheese making. After the introductory work, each student is required to conduct cheese and butter making through all its processes until the finished product is reached, without relying upon the promptings of the instructor. This necessitates close observation of every detail, an essential factor in dairy work.

Butter and cheese making should command the attention of the young men of Utah, especially so as factories are being started and managed by eastern experts on conditions unfavorable to our interests, aside from the fact that such talent should

be supplied at home. Butter should be exported rather than imported, as it is the most concentrated product of the farm.

The lecture room and the farm will be wedded. Exercises on the farm and excursions to farms successfully conducted will afford means of converting abstract into concrete knowledge, or theoretical into practical knowledge. Successful farmers will be invited to deliver lectures to the students, who will thus be brought into contact with those speaking wholly from the practical side of farm problems. A statement of the means in the possession of the College for illustrating the teachings of the lecture room will be found on the following pages.

HORTICULTURE.—Instruction will be given both by lectures and by field exercises. A daily recitation or a daily exercise for the entire year is required to complete the studies of this subject. Instruction will be given—on the preparation of ground for garden vegetables and in their improvement, planting, cultivation and general care; on the propagation, cultivation and general care of small fruits; harvesting, preservation and general care of large fruits and management of fruit trees. This instruction will include seeding, grafting by the various methods, budding, pruning, as well as picking, packing and marketing fruit.

Forestry will receive considerable attention. Students will have opportunity to work upon the forestry grounds of the College, and to note methods of planting and care of the several kinds of trees, and to observe their habits and rapidity of growth.

The grounds of the Horticultural Department contain a large number of the most promising kinds of economic trees. The extremely high price paid for hard wood lumber in Utah, makes it probable that rare kinds of trees may be grown here at a profit.

The management of greenhouse plants, including flowers, will be taught to the young women of the College.

Horticulture is approximately a polite art, and a knowledge of it is becoming more and more prized by all classes of citizens. This department, therefore, will be made a strong one. Effort

will be made to blend theory and practice as perfectly as possible.

Practice in the department above referred to keeps students in frequent exercise in practical matters and aids in retaining the love of active life which it is claimed is often lost during education at academic institutions.

ENTOMOLOGY.—This subject will be taught with special reference to insects injurious to vegetation. The world is now in a measure conquering the insect foes of plants, and has accumulated valuable information that will be imparted to the students. Packard's *Entomology for Beginners* is used as a guide.

SHOP WORK.—Three exercises of two hours each per week for the fall and winter terms and five days for the spring term, will be devoted to work at the forge with iron and at the bench with wood. Skill in handling ordinary carpenters' tools, and in common blacksmith work will be acquired. Habits of accuracy and of perfection in the details of work will be taught that will remain as a force or mental habit to affect after life. The design is to acquaint young farmers with the manipulation of tools and with some of the principles involved, for their own use on the farm. This work has been found to be one of the most popular and useful parts of courses in agriculture. A bench with a full set of carpenters' tools is assigned to each student. The forge shop with power blasts occupies a separate room, where upsetting, tempering, welding and forming tools are taught.

BOTANY.—Elementary Botany will commence the first term of the Sophomore year. During this term the student will become familiar with the roots, stems, leaves and flowers of plants. Each student will be required to do field work. Gray's *Elementary Botany*.

The third term of the Sophomore year will be given to the study of physiological botany and of plant analysis. Each student will be required to collect, name and properly mount specimen plants.

BIOLOGY.—During the Junior and Senior years, lecture courses and laboratory work will be given in this subject. The

differences between living and dead matter will be reviewed, and such subjects as protoplasm, cells, tissues and organs will be considered. Types of the lower vegetable kingdom (not included in the botanical course), and selections from the invertebrate and vertebrate divisions of animal life will be taken for illustration and for examination in the laboratory. Research work in the germ causatives of disease, both human and animal, will be made in connection with the Experiment Station, and students will be familiarized with the processes used in bacteriology, such as the preparation of culture media, culture and separation of germs, staining and mounting specimens of various bacteria, making sections of tissues, etc., and general microscopical mounting. A full set of apparatus for the work of investigation, such as is used in the laboratories of Prof. Koch, in Berlin, and of Prof. Pasteur, in Paris, has been provided. Microscopes, microtomes and the general accessories for laboratory work will also be used by the students. It is intended that the courses shall be so directed as to be of practical value after the college curriculum has been completed.

The first term of the Junior year, the study of cryptogams and economic botany will be taken up. Two afternoons each week will be given to the microscopic study of the structure and diseases of plants. Especial attention will be given to such fungi as are injurious to cultivated plants.

PHYSICS.—The course in General Physics covers two terms. During the first term, especial attention is given to mechanics and heat, every principle being illustrated and explained by the use of the extensive apparatus belonging to the department. Especial prominence is given to those principles on which depend the applications to every day life.

During the second term, lectures are given in electricity, sound and light. Enough knowledge of these subjects is gained so that the student will understand in a general way all the important applications of these subjects.

In the engineering courses, much more time is given to the study of advanced general and experimental mechanics, and the study of the theory of heat.

In the course in Mechanical Engineering, one hour per day for two terms is devoted to the thorough study of the theoretical and practical side of electricity, and the study of modern electrical apparatus.

All the instruction in physics is well supplemented by practice in the laboratory, and the work is so designed as to require quantitative results, even in elementary work. In the advanced work, it is the endeavor to have students derive their own constants and plan their own work.

The physical lecture-room has seats for fifty students, and the laboratory can be arranged to accommodate about the same number.

GEOLOGY, LITHOLOGY AND MINERALOGY.—Fifty lectures in general and economic geology are given in the spring term. More prominence is given to structural geology, including the formation of rocks and soils, than to historical geology. One afternoon each week is devoted to field excursions and to practice in determining the more common rocks.

In the winter term six hours per week are devoted to laboratory practice in determinative mineralogy, giving especial attention to the rock-forming minerals. Two recitations per week, based on Dana's Mineralogy, are designed to supply the necessary theoretical information.

The instruction in mineralogy and geology is rendered more attractive by the frequent use of the College cabinet of rocks and minerals, containing some 5000 specimens.

CHEMISTRY.—I. *Inorganic Chemistry.*—Instruction in this subject begins with the Sophomore year. Five lectures and recitations per week during the first term are devoted to a consideration of the elements of the science, embracing the history of chemistry, chemical affinity and the laws of chemical combination; elementary substances, their geographical distribution, preparations, properties, combinations, technical uses and the applications of chemistry in the arts and manufactures. Text-book—Remsen's *Briefer Course and Lectures*. This work is supplemented by a short course in the laboratory, intended to illustrate principles discussed in the classroom and to train the

students in methods of chemical manipulation. This laboratory course occupies six hours per week for eight weeks.

2. *Organic Chemistry*.—In the second term a course of fifty lectures is given in organic chemistry in which the principles of the science are discussed, and the student is made familiar with the source, preparation and uses of the more important compounds.

3. *Qualitative Analysis*.—One hundred and fifty hours are devoted to laboratory work in this subject. Under the direction and supervision of the Professor of Chemistry the student applies with his own hands the reagents required to determine the composition and properties of bodies; he thus secures a practical knowledge of the methods employed in such investigations. This work is deemed extremely valuable from an educational as well as a practical point of view. Every student is required to make an analysis of at least fifty unknown substances.

4. *Agricultural Chemistry*.—This subject is treated in a course of lectures, given in the spring term of the Sophomore year, in which the following subjects are discussed: Composition of plants, sources of plant food, manures, general and special chemistry of animal nutrition and kindred topics.

ANATOMY AND PHYSIOLOGY.—This is the Junior study occupying the first two terms. While this is primarily a course in human physiology, the anatomy and physiology of the domestic animals are considered from a comparative point of view. The course is illustrated by models and anatomical preparations, diagrams and dissections representing the comparative structure of the principal organs in the different branches of the animal kingdom.

Each student is expected to become familiar with the appearance, structure and relations of the organs of the animal system in the normal state. Opportunities are given for the study of the minute structure of the various tissues by means of the microscope.

VETERINARY SCIENCE.—Lectures and recitations occur daily during the Senior year, in which the following topics will

be considered: Anatomy, physiology and hygiene of farm animals; zymotic, parasitic, dietetic and constitutional diseases of domestic animals; prevention of animal plagues by legislative and individual action; general diseases of different systems of organs in domestic animals, together with clinical demonstrations as opportunity offers.

CHEMICAL LABORATORIES.—The rooms of the chemical department are located in the north wing of the College building and include a large, well-lighted lecture-room, a laboratory fitted with hoods, gas, water and individual tables to accommodate sixty students, together with storeroom, balance-room and office.

ENGLISH LITERATURE AND RHETORIC.—The work in English embraces grammar, rhetoric and literature, and runs parallel through all the four-year courses as far as the second term of the Junior year. In grammar, after a review of etymology, with special attention to the formation of the verb, the structure of the English sentence is carefully examined. Nearly a term is spent in analyzing sentences from classic authors. This is believed to secure better results than spending time in the correction of false syntax. This work is followed by a term of elementary rhetoric. In this the principles of invention, the elements of style and the different forms of composition are studied. The preparation of manuscript for the printer is taught in connection with the written work. Essays are required once a fortnight, mostly reproductions, illustrating the laws of description and narrative. In the more advanced rhetoric the rules of argument are studied, and to illustrate and enforce these some masterpieces are critically examined. Frequent oral and written exercises make the work entirely practical. For the elementary work, Longfellow's *Tales of a Wayside Inn*, furnishes matter for reproduction and study in versification. For the more advanced work, Burke's and Webster's speeches are studied, and debates, written and oral, are had on questions of general interest. Each student presents three written exercises.

The first work in literature follows the elementary rhetoric. It is a critical study of short, complete classics—essays, poems

of various kinds, speeches, sketches and stories. Enough of each author and his times is told in familiar lectures to awaken interest, and show the occasion of the production. In this work constant reference is made to rhetorical principles, and the style of different authors is carefully compared, and both style and form are studied with reference to the thought and sentiment. The second term's work is given to a historical survey of literature, from Chaucer to the present time. Sufficient attention is given to the leading authors of the different periods to make evident the characteristics of their thought and style. The English drama receives special attention, and one day each week for two terms is given to reading Shakespeare. The last term of the Junior year is given to the study of masterpieces. All the important forms of literature are laid under contribution—the drama, the epic, the lyric, the novel, the essay, biographical and critical, the oration and history. One week is given to each piece selected. The work of the classroom is largely a report of students, either oral or written, on what they have done by themselves.

For the first term's work—third term Freshman year—the following texts are read:

Shakespeare's *Merchant of Venice*.

Bacon's *Essays*—Selections.

Milton's *L'Allegro, Il Penseroso, Hymn, and Lycidas*.

Addison's *Sir Roger De Coverly Papers*.

Pope's *Rape of the Lock*.

Gray's *Elegy in a Country Churchyard*.

Goldsmith's *Deserted Village and Traveller*.

Burns's *Cottar's Saturday Night*, and some other poems.

Wordsworth's *Ode on Immortality*, and narratives from *The Excursion*.

Irving's *Sketchbook*.

Tennyson's *Ulysses, Locksley Hall, Enoch Arden*.

Dickens's *Christmas Carols*, and selections from Emerson, Lowell, Holmes, Longfellow and Hawthorne.

Most of these can be found in such compilations as Swinton's and Pancoast's, and in the series of British classics,

For the work of the first term—Junior—*Shaw's English Literature* is used, and such illustrative texts as are available, and do not duplicate previous or subsequent work.

For the third term Junior—an elementary masterpiece course. The following list, or its equivalent—texts changing somewhat from year to year—is offered:

Shakespeare—one great tragedy—*Hamlet, Macbeth, Lear, Othello.*

{ Webster—*Reply to Hayne.*

{ Burke—*Conciliation With American Colonies.*

Macaulay—*Essays on Milton and Addison.*

Milton—*Paradise Lost, I and II; Samson Agonistes.*

Carlyle—{ *Essay on Burns.*

{ *Hero as Prophet.*

Tennyson—*Princess*, or select poems.

Motley—*Peter the Great.*

George Eliot—*Silas Marner.*

Wordsworth—*Select Poems.* Ed. by M. Arnold.

MODERN LANGUAGES.—The German and French languages are optional during the Senior year. The Germans are now the leaders in agricultural science. The advanced student of agriculture must be able to read the literature on his subject coming from the German press. French is necessary to the advanced student of domestic arts. Both are deemed essential to a liberal education. This is the reason for the appearance of these languages in these courses. Both are taught after the same method. Oral and written exercises are accompanied by conversation, making more familiar the vocabulary and accustoming the ear as well as the eye to the words. In the time allotted only the framework of the languages can be mastered; but enough is given to enable the student to prosecute independent study and consult German or French books.

After completing the Joynes-Meissner Grammar and Reading book, German students will be given such scientific reading material as will best equip them for using works of reference, and the publications of scientific institutions and societies. French students first complete Keetel's Grammar and Reader,

and then read modern classics—Hugo, Dumas, Balzac, Souvestre, Daudet.

Text books:

Pancoast's *Representative English Literature*.

Shaw's *Manual of English Literature*.

D. G. Hill's *Rhetoric and Composition*.

A. S. Hill's *Principles of Rhetoric*.

Jevon's *Logic*.

Joynes-Meissner's *German Grammar*.

Joynes-Meissner's *German Reader*.

Keetel's *French Grammar*.

Keetel's *French Reader*.

Gayley's *Classic Myths*.

Hudson's and Rolfe's *School Shakespeare*.

CIVIL GOVERNMENT.—This covers the field of United States history more philosophically in the Junior year and traces the progress of constitutional liberty through the long line of English history and in our National and State Constitutions, and treats of the organization of Territorial and local governments. Interest is imparted to this study by free discussion and occasional debates on questions of the day.

POLITICAL ECONOMY.—This is studied by text books and by lectures. The text book gives the established scientific principles of economics. The lectures examine the subject by the historical and statistical methods and to seek to find in all history and even among prehistoric nations, examples in accordance with which nations, states, cities and private business may be managed to advantage; and then accumulate data from statistics of wages, taxation, population, emigration, profits in all occupations, etc., for the purpose of rigidly testing the comparative methods of various systems and establishing a system which may approach perfection.

ELOCUTION.—It is the object of this department to make good readers, better conversers and good speakers; to make the voice and the body fit instruments to serve the soul and mind. The course then will include the development of the voice and

the training of the body to respond to the changes of the soul's emotion.

First Term—Physical culture, voice culture, articulation and light reading.

Second Term—Inflection, pronunciation, gesture, and expressive reading.

Third Term—Gesture continued, practical work in recitations and impersonation.

MEANS OF ILLUSTRATION.

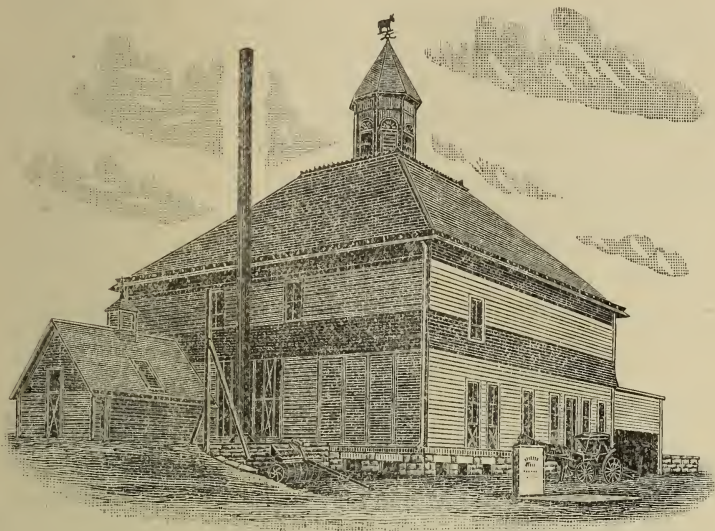
LABORATORIES.—The apparatus and means of illustration in the Chemical, Physical, Botanical, Veterinary, Agricultural and Horticultural Laboratories, Museums and Libraries, together with farm and horticultural appliances and pure-bred stock are valued at \$35,000. Already the College has secured from Prof. M. E. Jones, 4500 species of the flora of Utah and the intermountain region for the Botanical Laboratory. In addition to the Chemical Laboratory of the College, the Experiment Station has a Chemical Laboratory that is equipped at a cost of \$2500.

LIBRARY.—The Library contains a large and choice selection of agricultural books, and the reading-room is supplied with agricultural papers.

MUSEUM.—The Museum contains material for classroom illustrations for this department. Over four hundred slides for use in the magic lantern illustrate processes that cannot be shown in practice, while collections of wools, grain, some forty milling products of wheat, etc., etc., afford means of teaching by the eye rather than by the ear.

The Experiment Station affords a most valuable means of illustrating farm processes, and has the added advantage of stimulating the thinking and observing powers as no other means of object teaching can do; for the station is engaged in testing methods and in searching for unknown laws.

THE FARM.—On the farm proper there are over three hundred and thirty plats laid out for investigations. These cover time for irrigation, amount of water to use, sub-irrigation, night versus day irrigation, method of fitting ground for irrigation, and other irrigation trials. They include trials of variety of wheat, corn, oats, barley, and of forage crops; of mulching; drilling against broadcasting methods of tillage, time of tillage, depth of tillage, several methods of plowing, no tillage, depth of planting, distance of planting, time of sowing, amount to sow, selected seed, time of harvesting, chemical fertilizers, methods of manuring, varieties of grass for hay, varieties of grass for pasture—to be tested by actual grazing trials, mixed grasses for pasture, several crop rotations, soil, and other studies.



THE MODEL BARN.

THE DAIRY.—A series of rooms designed for butter and cheese making, cover a space of 36x80 feet. These rooms are equipped with modern conveniences for the production of the best grades of butter and cheese. In these rooms students will apply in practice the theories learned in the classroom.

Some twenty-six feeding trials with cattle, sheep, horses and hogs are in progress. Pure bred cattle of the Shorthorn, Jersey and Angus breeds, and Shropshire sheep and Berkshire swine are raised. These are all highly bred and model animals.

HORTICULTURAL DEPARTMENT.—In this department there is a series of the most important economic trees under test. Many have been introduced by the Station. One hundred varieties of apples, many varieties of pears, peaches, plums, grapes, strawberries, raspberries, blackberries, potatoes and vegetables of various kinds are on trial, while several lines of horticultural investigations are in progress.

CHEMICAL DEPARTMENT.—The chemist of the Station will carry forward a large amount of chemical work in plant and animal life, and on soils, etc.

It is believed that the Agricultural College and Agricultural Experiment Station of Utah are equipped for first-class work, and will compare favorably with the very best institutions of the kind in this country.

The Bulletins of the Experiment Station will be sent free to any one asking for them.

LITERARY OPPORTUNITIES.

LECTURES.—Members of the faculty and speakers from abroad will deliver lectures in the chapel at regular periods.

LITERARY SOCIETIES.—The students of the College have organized two literary societies, one for young women and one for young men, thereby affording an opportunity of acquiring before an audience self-possession, ease and skill in debate. The other means of advancing the literary tastes and acquirements of its members that are common to such societies—essays, orations, papers, etc.—are included in the exercises of these societies.

GYMNASIUM.

The addition to the College building contains a gymnasium seventy feet square. This room is equipped with modern appliances. Exercises for young women are systematically conducted under the supervision of the department of physical culture, while young men make free use of it.

MILITARY SCIENCE AND TACTICS.

This course includes both theoretical and practical instruction and is in charge of an officer of the United States Army, detailed by the U. S. Government. All male students of the Freshman and Sophomore classes and of the Preparatory Department are required to take the course unless excused by the faculty on account of physical disability or for some other valid reason. Optional for Juniors and Seniors.

Springfield cadet rifles and equipments are furnished by the U. S. Government for infantry drill and two rifled cannon for artillery instruction. A uniform of dark blue, with forage cap, is worn by the cadets, the cost being about fifteen dollars. On all occasions of military ceremony, during drill and when students are receiving any other military instruction, they are required to appear in the uniform as prescribed by the College.

The practical instruction in infantry includes, as far as possible, all the movements described in the drill regulations of the United States Army, from the manual of arms and bayonet exercise in the school of the soldier to the drill by battalion; target practice with the rifle, for which the government makes an annual allowance of ammunition, and instruction in signaling with flag and torch and in military telegraphy.

Artillery instruction embraces drill in the manual of the piece, and target practice.

Near the close of the school year, whenever practicable, the cadet battalion will go into camp for several days' practical exercises in marching, sentinel duty, constructing hasty intrenchments and other field work.

Theoretical instruction by recitations and lectures is given in the drill regulations, the preparation of the reports and returns of a company, the organization and administration of the army, and the elementary principles governing the art of war,

THREE YEARS' COURSE IN AGRICULTURE.

FRESHMAN YEAR.

Hour. 9:00 to 9:55. Penmanship.	Grammar.	Grammar.
9:55 to 10:50. Grammar.	United States History.	United States History.
10:50 to 11:20. Military Drill	Military Drill.	Military Drill.
11:20 to 12:15. Geography.	Arithmetic.	Arithmetic.
12:15 to 1:10. Reading, 8 weeks. Spelling, 8 "	History of Agriculture. Farm Buildings. Fences.	History, Description and Management of Cattle, Horses, Sheep and Hogs. 3
2:10 to 4:00. Shop Work in Wood. 3	Shop Work. 8	Shop Work in Iron.

JUNIOR YEAR.

9:00 to 9:55. Botany. 3	Organic Chemistry.	Agricultural Chemistry.
9:55 to 10:50. Chemistry.	Physics.	Soils, Farm Machinery.
10:50 to 11:20 Military Drill	Military Drill.	Military Drill.
1:20 to 12:15. Elocution. 2 Free-hand Drawing. 3	Book-keeping. 3 Elocution. 2	Botany. 2 Horticulture. 1 Surveying. 2
12:15 to 1:10. Manners and Morals. 2	Horticulture. 3	Surveying.
2:10 to 4:00. Chemical Lab- oratory.	Chemical and Physical Laboratories.	Chemical and Botanical Laboratories.

SENIOR YEAR.

9:00 to 9:55. Anatomy and Physiology.	History, Description and Management of Horses, Cattle, Sheep and Hogs, and Stock-breeding.	Geology.
9:55 to 10:50. Botany.		Veterinary Science.
10:50 to 11:20. Military Drill.	Military Drill.	Military Drill.
11:20 to 12:15. Veterinary Science.	Veterinary Science.	Drainage, Animal Nutrition, Farm Management.
12:15 to 1:10.	Physiology.	Civil Government.
2:10 to 4:00. Dairying. Farm Crops. Irrigation.	Entomology.	Farm Practice.

This course is intended for those who cannot or will not incur the expense of the full course of study. It is a business course in agriculture. It is framed on the same plan that courses in law and medicine are, as a purely technical course, and is intended, as they are, to furnish economic technical information. English grammar is made an exception in the first year of the course. This year furnishes a small degree of preparation without which no student would be prepared to study the abstruse sciences involved in the field of agriculture, as it requires some preliminary training. A certificate stating the fact of the honorable completion of the three years' course will be given.

WINTER LECTURES.

A preliminary test of the public demand for a course of practical lectures on farming, one term duration, was inaugurated for the winter term of 1893. Several farmers entered the course and remained to its close. The class doubled for the year 1894.

Application should be made two or more weeks in advance of the opening lectures. A class of ten or more is required.

SPECIAL LECTURES IN AGRICULTURE.

Agriculture.....	50	lectures.
Horticulture.....	30	"
Entomology	10	"
Botany	10	"
Chemistry	20	"
Veterinary Science.....	20	"
Political Economy	10	"
Special Reading Course.....	50	exercises.

The lectures in agriculture will be confined to the most important practical questions in farming, such as tillage, drainage, dairying, breeding, stock feeding, manuring and to answering such questions as may occur to those taking the lectures. Horticulture, chemistry and other studies will be treated wholly from the practical side. Those principles that bear directly upon practical operations on the farm will be explained and their application pointed out. Political economy is included for the reason that farmers are now taking an active part in national affairs.

DOMESTIC ARTS.

The course for young women will in general be the same as for young men in the four years' course in agriculture, except in the hours devoted to shop, farm, or horticultural work. In the place of these there will be special studies adapted to woman's work.

The value and necessity of special training in household economy is too well known to require explanation.

In view of this, special attention will be given to those branches of study in which young women require proficiency and to those studies which tend to adorn life in the sphere in which they move.

FRESHMAN YEAR.

Hour		Rhetoric.	Literature.
9:30 to 9:55.	Grammar.		
9:55 to 10:50.	Arithmetic.	Algebra.	Algebra.
10:50 to 11:20.	Military Drill.	Military Drill.	Military Drill.
11:20 to 12:15.	Elocution. 2	Elocution. 2	Elocution. 2
	Free-hand Drawing. 3	Free-hand Drawing. 3	Free-hand Drawing. 3
12:15 to 1:10.	Social Ethics and Morals. 2		
	Sewing. 3	Sewing.	Sewing.
2:10 to 4:00	Laundry Work. 3		

SOPHOMORE YEAR.

9:00 to 9:55. Botany.	3	Organic Chemistry.	Horticulture.	3
9:55 to 10:50. Chemistry.		Cooking Lecture.	Science of Nutrition.	
10:50 to 11:20. Military Drill.		Military Drill.	Military Drill.	
11:20 to 12:15. Geometry.		Bookkeeping. 3 Rhetorical Argum't. 2	Cutting, Sewing and Designing.	
12:15 to 1:10. Essays and Rhetoric. Horticulture.	2 2		Botany.	2
2:10 to 4:00. Chemical Laboratory. Horticultural Practice.	3 2	Chemical Laboratory and Cooking Practice.	Chemical Laboratory 2 Botanical Laboratory 1 Cooking Laboratory 2	

JUNIOR YEAR.

9:00 to 9:55. Anatomy and Physiology.		Entomology.	Geology.	
9:55 to 10:50. Botany.	3	Physics.	Physics.	
10:50 to 11:20. Military Drill.		Military Drill.	Military Drill.	
11:20 to 12:15. Literature.	3	Logic.	Civil Government.	
12:15 to 1:10. Zoology. General History.	2 3	Physiology.	Hygiene and Labor- atory Practice.	
2:10 to 4:00. Cooking and Canning Fruits. Botanical Laboratory.		Physical Laboratory. 2 Mineralogy and Lithology. 3	Physical Laboratory.	

SENIOR YEAR.

9:00 to 9:55. Household Management.	Advanced Cooking.	Thesis Work.
9:55 to 10:50. Psychology, 10 weeks. Moral Science, 6 weeks.	Political Economy,	Fancy Work.
10:50 to 11:20. Military Drill.	Military Drill.	Military Drill.
11:20 to 1:10. Either Painting, Music, Fancy Work, Drawing, Chemistry, German, French, Spanish or History of Civilization.	Either Painting, Music, Fancy Work, Drawing, Chemistry, German, French, Spanish or Astronomy.	Literature.
2:10 to 4:00. Dairy Practice.		Either Painting, Music, Drawing, Chemistry, German, French, Spanish or Sociology.

This course brings the degree of B. S. (Bachelor of Science.)

POST-GRADUATE COURSE.

The studies named in the post-graduate Course in Agriculture may be taken by the graduates of the Course in Domestic Arts, and in addition, science of nutrition, hygiene and home-nursing, music, drawing, sewing and elocution, each for the full year.

REMARKS ON THE SPECIAL STUDIES OF THE ABOVE COURSE.

PHYSICAL CULTURE.—Young women excused from military drill will be required to devote the time to the gymnasium.

COOKING.—The art as well as the science is taught. Exercises in the application of the knowledge acquired in the lecture-room are a regular feature of the work. Lectures in chemistry are succeeded by cooking. The cooking exercises are accompanied by practice in table-setting, table-waiting and presiding at the table as hostess. These exercises develop the knowledge and grace that characterize a well-bred hostess. For the development of this feature of the course the College is provided with a kitchen, dining-room, pantry, a cooking-range and stove, kitchen and table-ware, and individual work-tables with full equipment. Fee for laboratory practice, \$2.00.

SCIENCE OF NUTRITION.—A term's work is given to the study of foods, with reference to their special effects on the human system in both health and disease.

The study of dietaries for the healthy person is based largely on the results of the experiments of Prof. Atwater and his assistants.

Five weeks of the term are given to the study of the proper foods to be given in the different diseases. This work includes practice in the proper methods of cooking the foods.

HOUSEHOLD MANAGEMENT.—This embraces the study of economy of time and strength in performing household duties; the arrangement of entertainments; the relations of mistress to maid; the relation of the housekeeper to her environments. The sanitary location of the house, convenient arrangement of the rooms and artistic and economical furnishing of the same. Talks on the history of furniture, on rugs and carpets, and artistic hangings and wall paper. In all of which the laws of harmony are taught.

DRESSMAKING, CUTTING AND SEWING.—These are taught in the Freshman year, with instruction in the after years in fancy work and in the designing of artistic gowns. The work begins with hand-sewing, hemming, overcasting, blind-stitching, making button-holes, patching and darning. At least two muslin garments are made. A gown is cut out, basted, fitted, draped, trimmed and entirely finished by the student. Regular practice is given in the care of the machine, and its mechanism is illustrated. The students furnish materials and make their own garments. It will be the aim also to teach hygienic modes of dress.

DAIRYING.—Butter-making and cheese-making are arts requiring rare skill. Milk is one of the most complex and unstable compounds known in the whole range of farm life. No other field of farm economy presents a product so irregular and with results so unfortunate. The problems involved are very complex and interesting. Very decided attention will be given to this most important field of work, over which woman has general charge. Fortunately, the more exacting work of the dairy now falls to other hands, but the necessity remains of mastery by woman of the philosophy of dairying.

HYGIENE.—A special course of lectures on hygiene will be given to the young women of this course.

MUSIC AND PAINTING.—Music and painting are not made compulsory studies, but those who have a taste for these accom-

plishments and can acquire them are encouraged to devote time to them. No student will be allowed to take music who does not devote at least one hour daily to practice.

FRENCH.—This is made an optional study, in deference to the wishes of many of our citizens. Young women are, however, encouraged to acquire French. Its terms are used in the special studies of the young women of the College, and it is also more used in the domestic affairs of women than those of any other foreign language.

HORTICULTURE.—Horticulture has a fascination for all classes. Man has an inherent love of nature. Her living forms everywhere claim the admiration and almost the affection of every cultivated or refined person. Garden and household plants are varied, are very plastic in our hands, and are either beautiful or useful. In either case they minister to our pleasure. Household plants and the farm and village garden are always objects of interest and of importance to women, and often the source of physical health, inducing, as they do, frequency in the open air. This does not necessitate the added drudgery of physical work in the garden any further than pleasure may dictate.

The growing taste for this refined field of agriculture warrants the devotion of some time on the part of young women to the principles and practices of at least a restricted field in horticulture. A special class is taught in floriculture, especially as adapted to window gardening; in the preparation of soil and in the growth of vegetables and small fruits.

SHORT COURSE IN DOMESTIC ARTS.

The same reasons that led to the organization of a short course in agriculture gave rise to the formation of a short course for those young women who desire to avail themselves of the distinctly technical work of the four years' course in Domestic Arts, but who are unable to pursue all its studies. Those entering this course, must pass, with a high grade, the examinations required for the full course, or successfully pass through the preparatory year's work of this College. Fee of two dollars for laboratory expenses.

FIRST YEAR.

Passing Grade on Preparatory Year.

Hour.		Rhetoric.	Literature.
9:00 to 9:55.	Grammar.		
9:55 to 10:50.	Arithmetic.	Sewing.	Sewing.
10:50 to 11:20.	Military Drill.	Military Drill.	Military Drill.
11:20 to 12:15.	Elocution. 2	Elocution. 2	Elocution. 2
	Free-hand Drawing. 3	Free-hand Drawing. 3	Free-hand Drawing. 3
12:15 to 1:10.	Manners and Morals. 2		
	Sewing. 3	Fancy Work.	Sewing.
2:10 to 4:00.	Laundry.		Cutting, Fitting and Designing.

SECOND YEAR.

9:00 to 9:55.	Anatomy and Physiology.	Organic Chemistry.	Household Plants. Small Fruits and Garden Culture.
9:55 to 10:50.	Chemistry.	Cooking Lectures.	Science of Nutrition.
10:50 to 11:20.	Military Drill.	Military Drill.	Military Drill.
11:20 to 12:15.	Optionals, including Music, Painting, Drawing, Fancy Work.	Optionals, including Painting, Music, Drawing, etc.	Optionals, including Music, Drawing, Painting, etc.
12:15 to 1:10.	Cooking and Canning Fruits. 3	Physiology.	Hygiene and Laboratory Practice.
2:10 to 4:00.	Dairying and Dairy Practice.	Chemical Laboratory.	

SPECIAL COURSE IN COOKING.

A special course in cooking will be given in the winter term to women desiring to perfect themselves in this work. No examination will be required, as the course is designed for those who, from lack of opportunity, have been unable to become proficient in this important art. This work will include lectures in chemistry, household gardening, hygiene and cooking.

SCIENCE OF NUTRITION.—One term is devoted to the study of food materials in reference to their effect on man during health and during sickness. This includes how best to regulate the diet so that the proper nutritive ratio may be given more economically.

COURSE IN MECHANICAL ENGINEERING.

FRESHMAN YEAR.

FIRST TERM.	SECOND TERM.	THIRD TERM.
HOUR. 9:00 to 9:55. Grammar.	Rhetoric.	Literature.
9:55 to 10:50. Arithmetic. 10 Algebra. 6	Algebra.	Algebra.
10:50 to 11:20. Military Drill.	Military Drill.	Military Drill.
11:20 to 12:15. Elocution 2 Free-hand Drawing. 3	Elocution. 2 Mechanical Drawing. 3	Elocution. 2 Mechanical Drawing. 3
12:15 to 1:10. Manners and Morals. 2 Lectures on Use of Tools. 2	Mechanical Drawing.	Mechanical Drawing.
2:10 to 4:00. Bench Work in Wood.	Forge Work.	Wood Turning. 3

SOPHOMORE YEAR.

9:00 to 9:55. Higher Algebra.	Organic Chemistry.	Descriptive Geometry.
9:55 to 10:50. Chemistry.	Physics.	Physics.
10:50 to 11:20. Military Drill.	Military Drill.	Military Drill.
11:20 to 12:15. Geometry.	Arg. Rhetoric. 2 Mechanical Drawing. 3	Surveying. 4 Mechanical Drawing. 1
12:15 to 1:10. Rhetoric. 2 Mechanical Drawing. 3	Solid Geom'try, 4 weeks, Trigonometry, 7 "	Surveying. 3 Mechanical Drawing. 2
2:10 to 4:00. Chemical Labo- ratory. 3	Chemical Lab'ratory 3 Physical " 2	Chemical and Physical Laboratories.

JUNIOR YEAR.

9:00 to 9:55. Heat.	Hydraulics.	Applied Mechanics.
9:55 to 10:50. Analytical Geometry.	Calculus.	Calculus.
10:50 to 11:20. Military Drill.	Military Drill.	Military Drill.
11:20 to 12:15. Literature. 3	Mechanical Drawing. 4 Shakespeare. 1	Metallurgy. 3 Mechanical Drawing. 2
12:15 to 1:10. Theory of Pattern-making. 2 Mechanical Drawing. 3	Elementary Mechanism	Civil Government.
2:10 to 4:00. Pattern - making. 4 Foundry Practice. 1	Machine and Vise Work in Iron.	Machine Work in Iron.

SENIOR YEAR.

9:00 to 9:55. Applied Mechanics.	Measurement & Transmission of Power.	Geology.
9:55 to 10:50. Steam Engine.	Political Economy.	Thesis Work.
10:50 to 11:20. Military Drill.	Military Drill.	Military Drill.
11:20 to 12:15. Municipal Engineering.	Steam Boilers.	Applied Electricity.
12:15 to 1:10. Electricity and Magnetism.	Steam Engine Designs.	Machine Designs.
2:10 to 4:00.	Mechanical Drawing.	Experimental Work.

The following is a detailed explanation of the technical work in the course of Mechanical Engineering:

LECTURES ON THE USE OF TOOLS.—Including growth, sawing and seasoning of timber, care of tools, principles of construction, and elementary mechanical drawing.

MECHANICAL DRAWING.—In the Freshman year is taught the use of the drawing instruments in the solution of problems involving geometric principles, and the principles of projection. Later, the student is required to make accurate sketches from actual machine from which he is to prepare working drawings.

In the Sophomore year attention is given to shading and tinting and to the solution of problems in Descriptive Geometry.

During the Junior and Senior years, much time will be given to the construction of drawings for machines and parts of machines designed by the student to work under given conditions.

SHOP WORK.—The purpose of this exercise is to give the student a certain amount of skill in the use of common carpenter, blacksmith and machine tools. In the Freshman year, the exercises in the woodroom include laying out work, sawing, planing, mortising, tenoning, splicing, etc., and in wood turning and circular and scroll sawing. In forge work, exercises in drawing, upsetting, bending, welding, annealing, case hardening and the construction and tempering of punches, cold chisels, springs and machine tools.

In the Junior year, exercises in the construction of simple and built-up patterns and core boxes and in molding. In the machine-room, exercises in clipping, filing, surface scraping, planing, drilling, turning, polishing, gear-cutting, and the construction of special tools, such as taps, reamers, etc. In all cases the exercises will be so arranged as to lead from the simpler to the more difficult operations, and to illustrate as many principles as possible in the time at command.

HEAT.—The effect of heat, its measurement, temperature, expansion, liquefaction, latent heat, specific heat, convection, radiation, relation of heat to mechanical energy, and principles of thermo-dynamics.

ELEMENTARY MECHANISM.—Under this head is studied the principles of linkwork, toothed gearing, cams, belting, automatic feeds, parallel motions and quick-return motions.

METALLURGY.—Fuels and refractory materials, with reference to their application in metallurgical processes, the principal ores of iron, and modern practice in the manufacture of iron and steel.

STEAM ENGINE.—A study of the various types of steam engines, the economic advantage in the compound and condensing engine, valves and valve-gear, Zenner's diagram, principles

and operation of the indicator, the effect of reciprocating parts, inertia of fly wheels, etc.

STEAM ENGINE DESIGN.—Calculation of parts and making working drawings for an engine complete. This involves the design of the valve and the proportioning of the reciprocating to produce the ideal indicator card.

STEAM BOILERS.—Modern forms of steam boilers, their advantages and disadvantages the methods employed in their construction, number and size of flues or tubes, riveting, staying, area of grate and heating surface, steam and water gauges, safety valves and injectors, boiler setting, methods of preventing foaming and incrustation.

ELECTRICITY AND MAGNETISM.—The aim is to familiarize the student with the measurement of current, electric transformers, the electro-magnet in its application to electric machinery, and the size and efficiency of conductors. This is supplemented by the study of dynamo-electric machinery in its application to transmission of power and in electric lighting.

MEASUREMENT AND TRANSMISSION OF POWER.—Measurement of power by means of dynamometers and Prouy brakes, the efficiency of steam, gas, compressed air and electric motors. Power absorbed by rope and leather belting and shafting. Cost of equipment, erection and maintenance.

THESIS WORK.—Early in his Senior year the student will be required to select a subject for individual investigation, and to prepare a thesis based upon the results. In this work he must depend very largely upon his own resources.

For information on the subjects, Descriptive Geometry, Analytical and Applied Mechanics, and Hydraulics and Municipal Engineering, the student should refer to the course in Civil Engineering. For the subjects, English, Civil Government, Political Economy, etc., to the course in Agriculture.

The various departments of the mechanical laboratory are equipped as follows:

For bench-work in wood, wood turning and pattern making—thirty benches and ten lathes with necessary tools, pattern

makers, rip and cross-cutting circular saw, band saw, and a variety of special tools.

For forge work—twenty-four power-blast forges, with anvils, vises and all necessary tools.

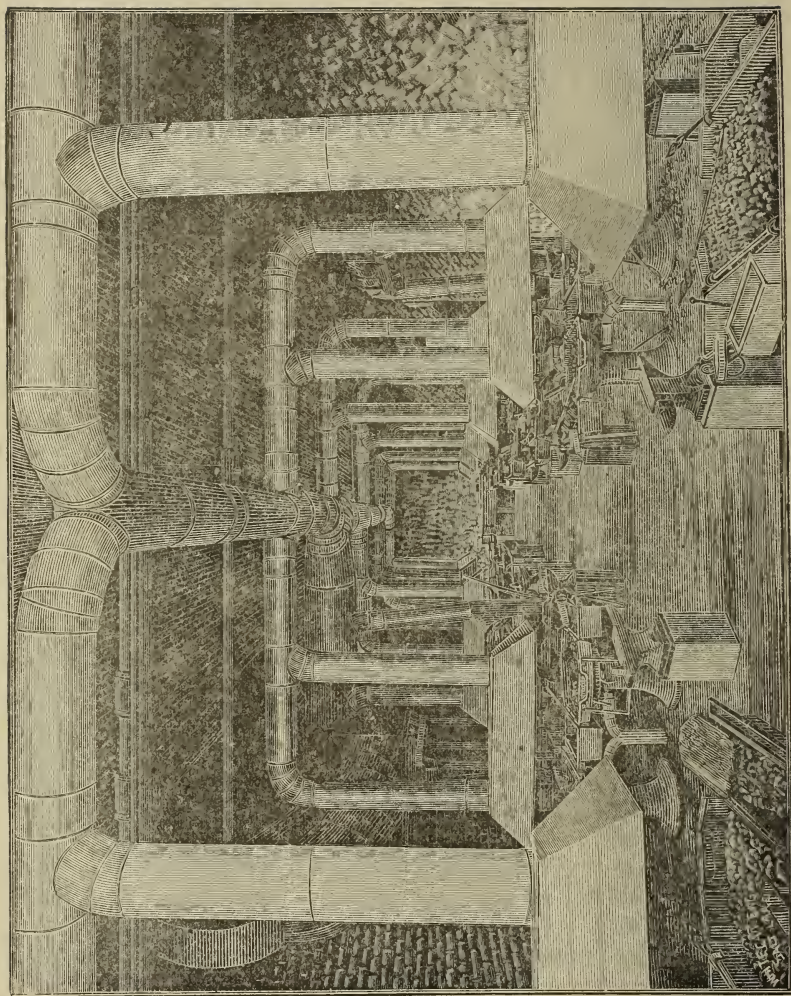
For moulding—a commodious room with flasks and fittings for practical work.

For machine work—24x24 inches by 6 feet iron planer, a universal milling machine, two 14-inch engine lathes with various attachments, speed lathes, a 20-inch drill press, emery grinder, grindstones, and special tools, such as standard gauges, etc.

The machinery will be driven by an 8x10-inch Dick & Church automatic cut-off, high-speed engine, which will also be used for experimental work in engineering. All of the equipment is of high quality, with the latest improvements.

No charge will be made for use of appliances, but a deposit will be required, from which the cost of the material used will be deducted. This cost will be \$4.00 yearly for two years of the course.

The degree of B. M. E. (Bachelor of Mechanical Engineering) will be given to those who complete the course.



FORGE ROOM.—See Page 27.

COURSE IN CIVIL ENGINEERING.

FRESHMAN YEAR.

<div> <div> <div>HOUR.</div> <div>FIRST TERM.</div> </div> </div>	<div> <div>SECOND TERM.</div> </div>	<div> <div>THIRD TERM.</div> </div>
9:00 to 9:55. Grammar.	Rhetoric,	Literature.
9:55 to 10:50. Arithmetic, 10 weeks. Algebra, 6 weeks.	Algebra.	Algebra.
10:50 to 11:20. Military Drill.	Military Drill.	Military Drill.
11:20 to 12:15. Elocution. 2 Free-hand Drawing. 3	Elocution. 2 Mechanical Drawing. 3	Elocution 2 Mechanical Drawing. 3
12:15 to 1:10. Manners and Morals. 2 Lectures on Use of Tools 1	Mechanical Drawing.	Mechanical Drawing.
2:10 to 4:00. Shop Work.	Shop Work.	Shop Work—Iron.

SOPHOMORE YEAR.

9:00 to 9:55. Higher Algebra.	Organic Chemistry.	Descriptive Geometry.
9:55 to 10:50. Chemistry.	Physics.	Physics.
10:50 to 11:20. Military Drill.	Military Drill.	Military Drill.
11:20 to 12:15. Geometry.	Arg. Rhetoric. 2 Mechanical Drawing. 3	Surveying. 4 Mechanical Drawing. 1
12:15 to 1:10. Arg. Rhetoric.	Solid Geometry, 5 wks. Trigonometry, 6 wks.	Surveying. 3 Mechanical Drawing. 2
2:10 to 4:00. Chemical Laboratory.	Chemical Laboratory 3 Physical Laboratory 2	Chemical Laboratory. Physical Laboratory.

JUNIOR YEAR.

9:00 to 9:55. Surveying.	Hydraulics.	Analytical Mechanics.
9:55 to 10:50. Analytical Geometry.	Calculus.	Calculus.
10:50 to 11:20. Military Drill.	Military Drill.	Military Drill.
11:20 to 12:15. Literature.	Descriptive Geometry.	Roads and Pavements.
12:15 to 1:10. Materials of Engineering.	Elements of Mechanism.	Civil Government.
2:10 to 4:00. Field Practice in Engineering.	Drawing.	Hydrographic Surveying and Field Practice.

SENIOR YEAR.

9:00 to 9:55. Applied Mechanics.	Power, Measurement and Transmission.	Geology.
9:55 to 10:50. Surveying and Geodesy.	Political Economy.	Railroad Engineering.
10:50 to 11:20. Military Drill.	Military Drill.	Military Drill.
11:20 to 12:15. Municipal Engineering.	Irrigation Engineering.	Applied Electricity.
12:15 to 1:10. Electricity and Magnetism.	Graphical Statics.	Roofs and Bridges.
2:10 to 4:00. Experimental Work and Engineering Designs.	Engineering Designs.	Thesis Work.

The instruction in this course extends over a period of four years and is designed to afford a training of a practical as well as theoretical nature to such students as are preparing to enter the profession of Civil Engineering.

Successful students receive at the end of the four years' course the degree of B. C. E. (Bachelor of Civil Engineering).

COURSE OF STUDY.

HYDRAULICS.—This subject precedes hydrographic surveying, irrigation and waterworks construction. The student is instructed in the fundamental laws governing the equilibrium of fluids; the flow through orifices, over weirs, through pipes and in open channels. The measurement of water, the action of water upon vanes, water-wheels and pumping engines are also considered.

Text Book.—Merriman's *Hydraulics*.

IRRIGATION ENGINEERING.—This branch includes the location, grades, cross-sections, etc., of canals; the design and construction of flumes, head-gates, diversion weirs and dams; pipe irrigation and inverted siphons; rainfall, evaporation and seepage; methods of irrigation; duty of water; windmills, artesian wells, etc.

Text Books.—Wilson's *Manual of Irrigation*. Works of Reference—Buckley, Moncrief, Flynn, and Reports.

SURVEYING AND GEODESY.—Elementary surveying, with field practice, is taught in the second year; and ordinary surveying, including the location of railways, pipe lines and canals, together with city, mining and hydrographic surveying, form part of the third year—the afternoons of the first and third terms being devoted to field work. In the Senior year, practical astronomy is considered in connection with the more difficult problems of surveying, such as the determination of time, the measurements of base lines, etc.

Text Books.—Johnson's *Surveying*, Merriman's *Geodesy*.

DESCRIPTIVE GEOMETRY.—Embraces orthographic projections, developments, etc.; projections of plane and solid figures, curved surfaces and tangent planes; shades and shadows; construction of maps.

Text Book.—

APPLIED MECHANICS.—This subject is begun in the Junior year under the heading of *analytical mechanics* and forms the *applied mechanics and graphical statics* of the Senior year.

It includes the determination of the stresses in the several members of framed structures, as e. g. flumes, cranes, roofs, bridges, etc.; the proper proportioning of the materials in piers, retaining walls, dams, etc.; the methods of ascertaining and representing shearing forces and bending moments; a study of the strength, stiffness and resistance of materials and their adaptability to particular purposes.

ROOFS AND BRIDGES.—Under this heading is described, with the aid of blue-prints, the various kinds of roofs, roof coverings, highway bridges and railway bridges. When the student has acquired the requisite knowledge, he is asked to apply it in the design of new structures.

MATERIALS OF ENGINEERING.—The object of these lectures is to supplement the practical knowledge obtained in the carpentry, blacksmith, foundry and machine shops by notes on stone, brick, lime, cement, iron, steel and alloys.

RAILROAD ENGINEERING.—The instruction given includes track-laying, foundations, piles and pile-driving, embankments, tunnels, trestles and railroad structures in general. Also, the cost, maintenance and operation of railways.

ROADS AND PAVEMENTS.—This subject deals with country roads and highways, their location, construction and maintenance; and with the paving of streets and sidewalks, the materials used and modes of construction.

Text Book.—Bryne's *Highway Construction*.

MUNICIPAL ENGINEERING.—This course of lectures embraces water-works systems, gas and electric lighting, rapid transit and sewerage.

English Language, Literature, Mathematics, Mathematical Physics, Mechanism, Electricity and Magnetism, Applied Electricity, Civil Government, Political Economy, Chemistry and Geology are as outlined in the other departments.

SUMMER REPORT.—Each student upon entering the Senior year is required to present a report prepared by himself during the summer months on some structural work connected with the profession of civil engineering.

COMMERCIAL COURSE.

Three years ago, after mature reflection, a commercial course was placed in association with the other courses of the College. This course offered a broader general education than is common to the commercial courses of the country. Its success has exceeded expectations, in view of the fact that such courses have not been successful when associated with similar colleges. Its success is ascribed to the extremely practical character of the technical work, and to the fact that there were associated with this instruction other studies, that give to the business man an enlarged view of his varied relations as a citizen of the State.

In now offering a commercial course of four years, we make an entirely new departure in the history of commercial education in this country. This departure is based upon the success of the present course, and to a desire to bring it into harmony with the aim of the institution. This aim is a liberal and practical education for the industrial classes, education for citizenship, and for industrial life. No other large industrial class has a more direct and important relation to the material, social and political life of the nation, and it now appears that if a general education should be associated with technical education in agriculture, mechanic arts, civil engineering and domestic arts, it certainly should be associated with the commercial course. In thus bringing this department into accord with the philosophy of the National and Territorial acts founding this College, we do so with the hope that it will meet with the approval and support of the public.

FRESHMAN YEAR.

Hour. 9:00 to 9:55. Grammar.		Rhetoric.		Literature.
9:55 to 10:50. Arithmetic.		Algebra.		Algebra.
10:50 to 11:20. Military Drill.		Military Drill.		Military Drill.
11:20 to 12:15. Elocution.	2	Elocution.	2	Elocution.
Free-hand Drawing.	3	Free-hand Drawing.	3	Free-hand Drawing.
12:15 to 1:10. Manners and Morals.	2	Commercial Spelling.		Business Penmanship.
Horticulture.	2			
2:10 to 4:00. Shop Work in Wood.	2	Business Penmanship.		Shop Work in Wood.

SOPHOMORE YEAR.

9:00 to 9:55. Botany.	3	Organic Chemistry.		History of Commerce and Commercial Geog- raphy.
9:55 to 10:50. Chemistry.		Physics.		Physics.
10:50 to 11:20. Military Drill.		Military Drill.		Military Drill.
11:20 to 12:15. Geometry.		Arg. Rhetoric.	2	Special Course of Reading in General His- tory.
12:15 to 1:10. Essays and Arg.	2	Geometry. 5 weeks.		Roads and Pavements.
Rhetoric.	2	Trigonometry. 6 weeks.		
Horticulture.	2			
2:10 to 4:00. Chemical Lab- oratory.	3	Chemical Laboratory.	3	Physical Laboratory.
Horticulture Practice.	2	Physical Laboratory.	2	2

JUNIOR YEAR.

9:00 to 9:55. Anatomy and Physiology.		Commercial Law.		Geology.
9:55 to 10:50. Commercial Law.		Science of Bookkeep- ing.		Business and Legal Forms.
10:50 to 11:20. Military Drill.		Military Drill.		Military Drill.
11:20 to 12:15. Literature.	3	Logic.		Literature.
12:15 to 1:10. Zoology.	2	Physiology.		Civil Government.
General History.	3			
2:10 to 4:00. Typewriting.		Typewriting.		Typewriting.

SENIOR YEAR.

9:00 to 9:55. Commercial Arithmetic.	Stenography. (Optional.)	Thesis Work.
9:55 to 10:50. Psychology. Moral Science. 10 weeks. 6½ weeks.	Political Economy.	Stenography and Business Correspondence.
10:50 to 11:20. Military Drill.	Military Drill.	Military Drill.
11:20 to 12:15. Stenography. (Optional.)	Commercial Arithmetic and Rapid Calculations.	Political Economy.
12:15 to 1:10. Spanish or German.	Spanish or German.	Spanish or German.
2:10 to 4:00. Practical Work in Bookkeeping, Banking, Freighting, Insurance, etc.	Same as First Term.	Same as First Term.

TECHNICAL STUDIES.

BOOKKEEPING.—The principal objection that the business man of to-day finds to the Business College graduate is, that he receives too much theory and not enough practice. To overcome this, bookkeeping is taught throughout according to a system of actual business. Each student rents his own place of business, deposits money in the bank, buys and sells merchandise on all kinds of terms, thereby bringing into daily use such business forms as notes, drafts, checks, bill heads, statements, shipping invoices, account sales, receipts, deposit slips, certificates of deposit, mortgages, deeds, leases, insurance policies, bills of exchange and bills of sale.

He is keeping books according to the shortest and most approved methods in various kinds of business, such as general merchandise, grocery, dry goods, clothing, boot and shoe, hay and grain, coal, jobbing, commission, brokerage, manufacturing, joint stock companies and corporations. It will be observed that no two students' books are alike. Each one is buying and selling on his own account and recording his own transactions, and is relying upon his own judgment under the guidance of his instructor.

Banking and business counters afford the students opportunity for practice in banking exchange, and for the use of the various instruments that enter into business accounts and transactions. The bank is regularly equipped with books, stationery, etc., affording the student an opportunity to study banking from a practical standpoint. The same relation exists between it and the students as is found between a bank and business men in actual life.

COMMERCIAL LAW.—One of the fundamental principles of our law is that "Ignorance of the law excuses no one." Every one must bear the consequences of his own actions. It

is therefore very necessary that one about to enter upon an active business career be quite familiar with the rules and principles governing commercial transactions. The student is thoroughly drilled in the customs and the law regulating such important subjects as contracts, agency, partnership, corporation, guaranty or suretyship, limitation of time to sue, sale of goods, commission merchants and brokers, agreement for personal services, common carriers, insurance, telegraphs, patents, copyrights, trade marks, real estate conveyances, and all the business and legal forms that are used to carry on trade. It being our object to prepare our students for a position in the world as business men rather than mere clerks, this subject is given considerable prominence in the course.

The text book used is Parson's *Laws of Business*.

HISTORY OF COMMERCE AND COMMERCIAL GEOGRAPHY.

—In supplying the demands created by the division of labor, business men become important factors in interchanging commercial products. Their success as exchangers will depend largely upon their ability to discover a market and in being able to supply that market. The student will make a careful study of the principal countries of the world from which such staple articles of commerce as food, textile and mineral substances, metals and manufactured products are obtained. He will note the kinds and amount of such products from those countries, and the dependence of each upon every other for the necessities and luxuries of life; how markets are created and controlled; how waterways and railways afford a ready means of transportation, and influence trade; and how the improved mail, postal, telephone and telegraph services facilitate the interchange of thought and also influence trade. A historical knowledge of the development of nations, and of the increase of commerce and its effect upon the growth of cities is deemed of much importance. Statistics will be gathered showing the magnitude of the world's production. Practical commercial problems of the day will be discussed in class.

COMMERCIAL ARITHMETIC AND RAPID CALCULATION.—

This is largely drill work. Every business man realizes the

importance of being able to make his own calculations, and to perform the work quickly and accurately. To possess this accomplishment it not only requires a knowledge of underlying principles of commercial problems, but continued practice in executing them. A business man above all others should be able to apply his knowledge anywhere and at any time. The student is drilled daily for two terms in addition, multiplication, division, fractions, measurements, metric system, percentage, profit and loss, commission, interest, discount, storage, equation of accounts, partnership settlements, and all problems that the average business man is called upon to solve. Short methods are also studied. Our plan of presenting the subject is a very practical one.

GRAMMAR.—To secure a first-class clerkship in this age, requires a command of good English. Business and professional men find that a knowledge of capitalization, punctuation, of grammatical construction and good diction is a commercial power, and whether they possess it or not they find it necessary to rely upon clerks, when their business is a large one, to write creditable letters. Grammar is therefore given a prominent place in this course.

HISTORY, CIVIL GOVERNMENT AND POLITICAL ECONOMY.—United States history, geography, civil government, business ethics and political economy are deemed acquisitions important to both a business man and his aids. These studies give knowledge of the genius of our people, the spirit of their laws, of the moral code that governs in honorable business transactions, and of the great laws that underlie the commercial growth of a nation, and upon which its laws should be based. Business men are active factors in the national existence, and find that their purposes and commercial powers are widened by knowledge in the fields covered by the studies named.

For observations regarding other studies more directly related to education for citizenship see the notes under the course in agriculture.

Those completing the Preparatory Course of this College will be admitted without further examination.

SHORT COMMERCIAL COURSE.

FRESHMAN YEAR.

Same as Preparatory Year.

JUNIOR YEAR.

Hour.	FIRST TERM.	SECOND TERM.	THIRD TERM.
9:00 to 9:55.	Grammar.	Rhetoric.	Literature.
9:55 to 10:50.	Arithmetic.	Spelling.	Typewriting (optional)
10:50 to 11:20.	Military Drill.	Military Drill.	Military Drill.
11:20 to 12:15.	Elocution. 2	Elocution. 2	Business Correspondence.
	Typewriting (optional.) 3	Penmanship. 2	
12:15 to 1:10.	Manners and Morals. 2	Book-keeping.	Civil Government.
	General History. 3		
2:10 to 3:00.	Penmanship.	Typewriting (optional)	Penmanship.

SENIOR YEAR.

9.00 to 9:55.	Book-keeping.	Commercial Arithmetic	Book-keeping.
9:55 to 10:50.	Book-keeping.	Political Economy.	Book-keeping.
10:50 to 11:20.	Military Drill.	Military Drill.	Military Drill.
11:20 to 12:15.	Arg. Rhetoric. 2	Arg. Rhetoric. 2	Literature.
	Commercial Arithmetic. 3		
12:15 to 1:10.	Commercial Law.	Stenography (optional.)	Commercial Arithmetic
2:10 to 4:00.	Stenography (optional.)	Book-keeping.	Stenography (optional)

This course is intended for those who are unable to take the four years' course. In order to secure its success and to insure the other courses against injury from those who are inclined to get a mere smattering of book-keeping and a little grammar, and then to pass out into the world as college graduates, it has been determined that those desiring the advantages of any commercial studies must take the full course, or pass a critical examination in each study. A certificate stating the fact of the honorable completion of this course will be given.

The degree of B. S. (Bachelor of Science) is given to those who complete the four years' course.

DIRECTION TO STUDENTS.

Logan is reached over a branch of the Union Pacific Railway, formerly known as the Utah & Northern Railway. Two passenger trains connect with Logan daily.

New students will be examined on Tuesday and Wednesday, September 4th and 5th. On passing their examinations students will be directed to the proper officer to pay their entrance fees. The receipt of this officer will be shown to the Secretary of the Board of Trustees, who will sign the same and enroll the name of the bearer, and record certain required data on his books. This receipt will then be taken to the President of the College, who will issue a class card containing the course of studies that may be selected. This class card will be shown to each professor under whom the studies are to be taken, for class enrollment. The card must be returned to the secretary of the faculty within three days of its receipt, or a demerit of five for each day that it is withheld will be given, after the expiration of the three days' limit. If retained over one week the student will be dropped from his classes.

On students entering for the second and third terms, the cards will be secured from the secretary, when the studies will be assigned by the president and the cards signed by the professors; cards will be returned to the secretary, as before.

EXAMINATIONS.

Examinations for admission to the full College Courses will cover arithmetic to percentage, the elements of grammar, geography, and the elementary branches taught in our common schools.

To enter the Preparatory Department pupils will be examined in arithmetic to fractions, on the plan of Harper's Second Book, and in simple sentences in grammar.

Students completing the course in the Preparatory Department of this College will be admitted to the College courses without further examination.

COLLEGE CHARGES.

Tuition is free, but \$5 will be charged as an entrance fee for each year of the College course. For a single term for irregular students, the charge will be \$3. This sum is in lieu of the charges ordinarily made at colleges for library and other fees, so that the library, museums, etc., will be free to students.

In the chemical laboratory, work shops and cooking rooms, students will be charged for the cost of the materials actually used up by them in their exercises. This charge will be made only for the terms when the materials are used. This cost will vary from \$2 to \$4 per year.

Board at the new Club House will cost not over \$2 per week. This cost will include fires and lights, but not room rent. The room rent will be 50 cents per week. The income from this is used in paying the matron, the breakage of dishes and the wear and insurance of the building.

The character of the board is controlled by students who room at the Club House, and therefore the cost is determined by their wishes. Plain but good, substantial board should be furnished at \$2 per week.

Students boarding at private homes can secure board at from \$2.75 to \$3.50 per week. They are neither required nor urged to board at the Club House. Students frequently rent rooms and board themselves for less than \$2 per week.

REQUIREMENTS AND DISCIPLINE.

1. Evidence of good moral character must be furnished by students when required. Daily attendance at chapel exercises is required. These exercises will be wholly devotional and completely non-sectarian. They are conducted by the faculty, and in part by members of each of the churches represented in Logan, but wholly as worship.

2. Students are forbidden to enter saloons. On the first infraction of this rule, the students disobeying it will be called before the faculty. On the second infraction, the fact will be stated to the school. The third infraction will result in expulsion from the College.

3. Non-resident students, under twenty-one years of age, are required to attend the church of their choice on Sundays during day service. Students bringing from their parents a written request to be excused from church attendance, will not be required to comply with this rule. When students do not bring a request to be excused from church attendance, it is assumed that the parents desire the faculty to enforce the rule in this respect. This assumption is made because it is known that parents generally desire that their children attend church; and as it is impracticable to communicate with parents, this method is adopted.

4. Students will be required to take four full studies, unless excused by the faculty.

5. Prompt attention to all duties assigned will be required of each student. Gentlemanly deportment towards all with whom the student comes in contact, whether the faculty, fellow students or citizens, will be expected. Failure in this direction will become, when the aggregate reaches a given standard, a matter of record and of faculty action.

6. Students having no class during any hour from 9 a. m. to 1 p. m., shall, if they remain upon the College grounds, pass the time in their boarding-rooms, in the library, or some other place assigned them by the president.

Any student failing to comply with this regulation for the full hour will be demerited.

7. A student absent from either chapel or classroom will receive five demerits.

These demerits will be canceled if a satisfactory excuse is rendered within three days after return of a student who has been absent. If required, the recitation missed shall be made up.

8. Students will be excused from chapel exercises on written request of parents or guardians.

9. Misconduct in class may be demerited to the extent of five demerits. More demerits may be added by faculty action.

10. Misconduct in chapel or College halls or on College grounds may be demerited by the president or by faculty action.

11. Whenever in the opinion of the faculty the number of demerits warrants, the student and his parents or guardian shall be notified of his unsatisfactory conduct. When the number of demerits given to any student during any school year reaches 100, the student shall be expelled.

12. A perfect recitation shall receive a mark of 100 ; a monthly class record of less than 60 shall drop a student from a class. An average of less than 60 for all classes excludes from continuing in college.

13. Each instructor shall make a weekly report to the secretary of the faculty of the demerits given, and a term report of the class grades of students.

14. Scholarship marking will be as follows:

Above 95 per cent.	-	-	-	Distinction.
90 to 95	"	-	-	1st Grade.
75 to 90	"	-	-	2d Grade.
60 to 75	"	-	-	Pass.

The passing grade in the Business Course will be 80. Less than 90 will be second grade. Above 90 is regarded as in the other courses.

Grades will be determined as follows : Examination papers will be returned to students when they are requested. These papers will have marked upon them the grading of each answer.

Daily recitation will count one-third.

Inter-term examinations count one-third.

Final examinations count one-third.

15. Students not entering their classes within five minutes after the bell rings shall receive two demerits, unless they render a good excuse.

16. The absence of a professor for five minutes after the bell rings excuses a class for the hour.

At the ringing of the bell the students have the privilege of leaving the classroom.

17. Students cannot drop or change a class without faculty action.

18. No society bearing the name of the College or purporting to emanate from it shall be organized without the consent of the faculty, and the approval of its constitution and by-laws by the faculty.

19. Injury to College property by students shall be paid for to the extent of the injury, and if the injury be malicious, the student shall pay double the amount.

20. The use of tobacco in any form on the College grounds is prohibited.

21. Students from other towns boarding or living in Logan, must obtain excuses from the president in advance, when they desire to leave town during term time.

22. No excuses for absence are accepted unless for sickness, certified to by parents or boarding mistress, or for detention at home by parents for necessary reasons, to which parents or guardians certify.

23. Misconduct anywhere outside of the classroom exercises or beyond the College grounds, will be cause for demerit.

24. For the first offense of cheating in examinations, a student shall receive twenty-five demerits, and for a second offense the student will be suspended.

LIST OF STUDENTS.

A

Allen, A. T.....	Coalville
Allison, Carl.....	Ogden
Allred, William L., Jr.....	St. Charles, Idaho
Amos, William T.....	Payson
Anderson, Adam.....	Hyde Park
Anderson, Anthon E.....	Logan
Anderson, Charles T.....	Brigham City
Anderson, J. A., Jr.....	Ephraim
Anderson, Mamie.....	Logan
Anderson, Sarah S.....	Smithfield
Ashton, Lynne.....	Vernal

B

Ballif, Jos. F.....	Logan
Bankhead, John.....	Wellsville
Barrett, Arthur.....	Logan
Barrett, Minnie J.....	Logan
Bates, Attena.....	Hyde Park
Bell, George A.....	Logan
Beers, William D.....	Antelope, Idaho
Berryman, Chas. W.....	Blackfoot, Idaho
Berntson, Vendla.....	Logan
Bindrup, Martha.....	College Ward
Blanchard, Byron.....	View
Boyden, Walter M.....	Coalville
Boyer, Harry Guy.....	Springville
Broberg, E. J.....	Logan
Brown, Edna.....	Ibopah

Bunker, Arthur.....	Bunkerville, Nevada
Bunker, John M.....	Bunkerville, Nevada
Burnham, Mary.....	Fruitland, New Mexico
Butler, Sarah A.....	Soda Springs, Idaho

C

Cafferty, Carry M.....	Fairview, Idaho
Canfield, Israel.....	Ogden
Carver, Lewis H.....	Plain City
Chamberlain, Richard.....	Salt Lake City
Christiansen, Alfred A.....	Newton
Christiansen, Ephraim.....	Logan
Clark, D. W.....	Provo
Clark, Fred.....	Ogden
Clegg, M. Annie.....	Rexburg, Idaho
Clemens, Edith.....	Soda Springs, Idaho
Cleveland, Stafford Charles.....	St. Charles, Idaho
Cole, Alfred L.....	Logan
Cole, Sarah E.....	Logan
Connelly, Thos. P.....	Park City
Conrad, Winnifred.....	Salt Lake City
Cragan, Reno.....	St. George
Cragan, Wallace.....	Smithfield
Crittenden, Oscar.....	Hoytsville
Crockett, Fred. W.....	Logan
Crockett, H. E.....	Logan
Crockett, H. W.....	Logan
Crockett, J. A.....	Logan
Culmer, W. Fred.....	Salt Lake City

D

Deal, Roe A.....	Springville
Dee, Thomas LeRoy.....	Ogden
Dougall, W. B.....	Springville
Drysdale, Eliza.....	Logan
Duthie, Agnes E.....	Chicago, Ill

E

Egbert, J. Geneva	Soda Springs, Idaho
Egbert, Inez Elnora	Soda Springs, Idaho
Eldredge, Lawrence E	Coalville
Eliason, Isaac	Soda Springs, Idaho
Eliason, Jennie	Logan
Eliason, Phœbe	Logan
Ellsworth, Frank B	Lewisville
Emerson, Mary J	Beaver
Ensign, A. Wesley	Brigham City
Ercanbrack, Charles F	Goshen
Erlandson, Otto	Payson
Erwin, R. W	Logan

F

Fenner, Alice P	Ham's Fork, Wyo
Fife, Finis	Providence
Fitzgerald, John	Park City
Fletcher, Charles	Logan
Frost, Peter	Logan
Funk, C. L	Richmond

G

Gee, W. E	Lewiston
Geerston, Joseph	Huntsville
Gibson, Archie K	Ogden
Gooch, James F	Preston, Idaho
Gooch, Mary A	Preston, Idaho
Goodwin, Frank C	Logan
Goodwin, Rose M	Logan

H

Hanks, Frank H	Logan
Hancy, Lulo	Hyde Park
Hansen, Hans C	Logan
Hanson, Josephine	Soda Springs, Idaho

Hansen, P. C.....	Soda Springs, Idaho
Hansen, Willard.....	Brigham City
Harris, Alexander.....	Richmond
Harris, A. L.....	Richmond
Harris, Harry.....	Beaver
Harris, Gertrude.....	Lewiston
Harris, Joel J.....	Ogden
Hart, Alfred A.....	Bloomington, Idaho
Hart, Hermoine S.....	Bloomington, Idaho
Hartvigsen, Annie J.....	Hyrum
Hayball, Alfred H.....	Logan
Holden, Edward H.....	Logan
Holt, Lulu.....	Millville
Hopkins, E. R.....	Logan
Hopkins, Kittie S.....	Logan
Howell, Millie.....	Oxford, Idaho
Hoyt, Emma.....	Kamas
Hoyt, Martha.....	Kamas
Hull, Martha I.....	Whitney, Idaho
Hurst, Leoline.....	Logan
Humphreys, T. H.....	Paris, Idaho

I

Ingalls, Fields T.....	Springville
Irvine, A. R.....	Logan
Iverson, Alma.....	Brigham City

J

Jensen, Charles A.....	Hyrum
Jensen, James.....	Pleasant View
Johnson, Senus J.....	Newton

K

Kent, J. C.....	Lewiston
Kimball, Ernest.....	Logan
Kimball, Florence.....	Logan

Kimball, Orson H.....	Logan
King, Euphemia.....	Logan

L

Larsen, Andrew	Levan
Larsen, Christian	Logan
Larsen, Hyrum M.....	Newton
Lee, Frank A	Lerin, Idaho
Lee, S. N., Jr.....	Brigham City
Lessing, Isadore.....	Minersville
Lewis, Eugene B.....	Logan
Lewis, H. Claude.....	Logan
Lewis, Helena C.....	Logan
Lewis, T. C	Logan
Lightfoot, Frank L.....	Ogden
Lundberg, Victoria	Logan
Lunt, George	Nephi
Lunt, Oscar	Nephi

M

Malia, John	Park City
Marshall M. Delilah.....	Parowan
Maughn, Rachel Ann.....	Petersboro
Maughn, Elizabeth C	Petersboro
Maughn, Willard C.....	Petersboro
McCracken, William R.....	Smithfield
McCune, E. H	Nephi
McGarry, J. C.....	Beaver City
McLaughlin, Walter.....	Logan
McLean, Andrew.....	Castle Gate
Melville, J. Alexander.....	Fillmore
Mendenhall, John F.....	Springville
Merrell, Francis M.....	Soda Springs, Idaho
Merrell, Mary	Soda Springs, Idaho
Merrill, Amos N	Richmond
Merrill, Barbara.....	Smithfield
Merrill, Laura V.....	Richmond

Merrill, Lewis A.....	Richmond
Merrill, Lorin A.....	Richmond
Merrill, Lucy A.	Richmond
Michaelson, Nelson O.....	St. Charles, Idaho
Miller, John F.....	Salt Lake City
Morrell, Margaret L.....	Logan
Mortimer, Emily A.....	Logan
Murphy, William	Park City

N

Napper, Charles E.....	Logan
Nelson, J. B.....	Logan
Nielsen, Leo.....	Logan
Nielsen, Peter.....	Logan

O

Olsen, Andrew W.....	Millville
Olsen, Charles	Logan
Olsen, Frank Henry.....	Mount Pleasant
Olsen, Henry C.....	Logan
Osmond, Nellie.....	Bloomington, Idaho
Osborn, Robert L.....	Blackfoot, Idaho

P

Packard, A. O	Springville
Page, Nellie I.....	Payson
Palmer, Lettie	Logan
Peterson, Fred G.....	Logan
Peterson, Jane A.....	Logan
Peterson, John.....	Logan
Peterson, Josephine.....	Logan
Peterson, P. C.....	Ogden
Phister, Leonard W.....	Logan
Pitkin, Agnes J.....	Millville
Pond, Charles.....	Lewiston
Poulsen Andrew.....	Richfield

Pugmire, Richard S.....	St. Charles, Idaho
Pugmire, Moroni S.....	St. Charles, Idaho
Pugmire, Nora N.....	St. Charles, Idaho
Pugmire, V. R.....	St. Charles, Idaho
Pyper, Walter T.....	Salt Lake City

R

Reading, Albert.....	Salt Lake City
Rhead, J. L.....	Coalville
Rich, Libbie Hunter.....	Montpelier, Idaho
Ricks, Geo.....	Logan
Ringdahl, Hilda.....	Green River, Wyo.
Robertson, Alex.....	Spanish Fork
Robinson, Lenora.....	Logan
Robinson, Mary A.....	Montpelier, Idaho
Robinson, Robert L.....	Logan
Rockhill, Nathan.....	Spanish Fork
Roskelly, Cassie.....	Smithfield
Roskelly, Hannah.....	Smithfield
Roskelly, Libbie.....	Smithfield
Roskelly, Sarah.....	Smithfield

S

Salmon, Annie.....	Coalville
Sanborn, Alice.....	Logan
Sermon, Leslie A.....	South Cottonwood
Severn, Sarah E.....	Montpelier, Idaho
Sewells, F. G.	Ogden
Shull, Gideon B.....	Prescott, Arizona
Sjoberg, Emil S.....	Millville
Skanchy, Willard R.....	Logan
Smith, Arthur.....	Beaver
Smith, George G.....	Logan
Smith, Mamie.....	Plain City
Smith, Parley F.....	Lewiston
Smith, Robert M.....	Logan

Smith, Rochester.....	Preston
Smith, Roland.....	Preston
Smith, Winifred.....	Beaver
Sonne, Ole H.....	Phillipsburg, Montana
Sorensen, Rena.....	Logan
Spongberg, Anna.....	Franklin, Idaho
Squires, Lawrence C.....	Brigham City
Stephens, Horace H.....	Oakly
Stevenson, M. Charles.....	Salt Lake City
Stevenson, Lester A.....	Salt Lake City
Stewart, Isaac P.....	Logan
Stewart, John.....	Plain City
Stone, Ellen A.....	Logan
Stowell, Ephraim.....	Logan
Stowell, Harriet.....	Logan

T

Thiel, John L.....	Baker City, Oregon
Thomas, Nathan.....	Logan
Thomas, Nellie E.....	Smithfield
Thompson, Joseph R.....	Richmond
Toolsen, George A.....	Smithfield
Torgeson, George A.....	Logan
Tracy, Theodore D.....	Ogden
Travers, Aminte L.....	Levan
Travers, Charles C.....	Salt Lake City
Travers, W. J.....	Salt Lake City

V

Van Orden, William R.....	Lewiston
Vogel, Oswald F.....	Logan

W

Weaver, Budd D.....	Ibopah
Weaver, Ida.....	Ibopah
Webb, William M.....	Fillmore
Webster, Chas. A.....	Montpelier, Idaho

Webster, Rosemon.....	Montpelier, Idaho
Welsh, J. W.....	Coalville
Whitney, Herbert B.....	Mendon
Whitmore, George M.....	Nephi
Wilkinson, F. G.....	Logan
Wright, Lester T.....	Ogden

SPECIAL FARMERS' CLASS.

Aebischer, Charles.....	Logan
Ashcroft, Enoch.....	Hyde Park
Behunin, J. H.....	Ferron
Burnham, L. C.....	Hyde Park
Daines, Robert H.....	Hyde Park
Hiltbrand, John.....	Logan
Larsen, Christian.....	Logan
Larsen, R. O.....	Logan
Olsen, C. L.....	Logan

SPECIAL COOKING CLASS.

Broberg, Annie.....	Logan
Dewel, Leonora.....	Pleasant View
Hansen, Mary.....	Logan
Hendrickson, Mary D.....	Logan
Jacobson, Amelia.....	Logan
Jensen, Hattie C.....	Logan

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The Main Building is 342 feet long by 190 feet deep, and is completed, as shown in the drawing, excepting the central tower.

ANNUAL CATALOGUE

OF THE

Agricultural College of Utah

FOR THE YEAR 1894-5,

WITH

ANNOUNCEMENTS FOR THE YEAR

1895-6.

SALT LAKE CITY, UTAH:
MERCHANTS PRINTING COMPANY,
1895.

BOARD OF TRUSTEES.

William S. McCornick.....	Salt Lake City.
A. George Barber	Logan.
M. D. Lessinger,	Ogden.
William P. Nebeker	Salt Lake City.
Achilles Perrin	Ogden.
Aaron F. Farr, Jr.,	Logan.
B. H. Roberts	Farmington.

OFFICERS OF THE BOARD.

William S. McCornick	President.
Joseph E. Hyde	Secretary.
H. E. Hatch	Treasurer.

EXPERIMENT STATION STAFF.

J. H. Paul	Director.
E. S. Richman.....	Horticulturist and Entomologist.
A. A. Mills	Agriculturist.
J. A. Widtsoe	Chemist.
R. W. Erwin.....	Assistant Chemist.
Paul Fischer	Consulting Veterinarian.
F. W. Brewer.....	Biologist.
S. Fortier	Hydraulic Engineer.
F. B. Linfield	Dairyman.
James Dryden	Clerk and Stenographer.
H. E. Hatch.....	Treasurer.
J. E. Hyde	Secretary.

FACULTY.

Arranged in order of Seniority of Appointment.

JOSHUA H. PAUL, Ph.B., President.

Professor of Philosophy, Political Science and Sociology.

EVERT S. RICHMAN, M.S.A.,

Professor of Horticulture and Entomology.

JOHN T. CAINE, JR., B.S.,

Principal Preparatory Department; Commercial Arithmetic,
Geology, and Ethics.

ALONZO A. MILLS, B.Sc.,

Associate Professor of Agriculture.

JOSEPH E. SHEPARD, B.S.,

Professor of Commercial Law, Commercial Economics, and
Bookkeeping.

MRS. SARAH W. EDDY, M.A.,

Professor of History.

JAMES DRYDEN,

Teacher of Typewriting and Stenography.

ELIAS J. MACEWAN, M.A.,

Professor of English and German.

F. W. BREWER, M.A., M.D.,

Professor of Biology and Sanitary Science.

MISS CLARE KENYON,

Teacher of Elocution and Physical Culture.

HENRY D. STYER, FIRST LIEUT, 13th INF, U. S. A.

Professor of Military Science and Mathematics.

SAMUEL FORTIER, B.Ap.Sc., Mem. Can Soc.C.E., M. Am.
Soc., I.E.,

Professor of Civil Engineering.

F. B. LINFIELD, B.S.A.,
Professor of Dairying and Animal Husbandry.

J. WALTER MAYO,
Teacher of Drawing and Shop Work.

WILLARD S. LANGTON,
Assistant Professor of Mathematics.

JOHN A. WIDTSOE, B.S.,
Professor of Chemistry and Mineralogy.

MRS. DALINDA COTEY,
Professor of Domestic Arts.

MISS SARAH E. BOWEN,
Teacher of Sewing, Dressmaking, and Millinery.

JOSEPH E. HYDE.
Teacher of Penmanship and Vocal Music.

PAUL FISCHER, B.Agr., M.V.D.,
Professor of Agriculture and Veterinary Science.

JOSEPH JENSEN.
Professor of Physics and Mechanical Engineering.

W. FOGELBERG,
Teacher of Instrumental Music.

KARL C. SCHAUB,
Teacher of Drawing.

CALENDAR FOR 1895 6.

First term begins Tuesday, Sept. 17, and ends Saturday,
Dec. 21, 1895.

Second term, Jan. 7 to March 28, 1896.

Third term, March 31 to June 13, 1896.

Commencement week, June 7 to 13.

HOLIDAYS.

Thanksgiving Day.

Christmas vacation, Dec. 22 to Jan. 6 inclusive.

Washington's Birthday, Feb. 22.

Decoration Day, May 30.

Summer vacation, June 14 to Sept. 15.

ESTABLISHMENT OF THE COLLEGE.

An Act of Congress, approved July 2, 1862, provided that public lands should be granted to the several states, to the amount of "thirty thousand acres for each senator and representative in Congress," for the establishment and maintenance of an agricultural college in each state. By the terms of the recent act providing for the admission of Utah as a state, the amount of public lands granted to the Agricultural College of Utah was increased to 200,000 acres.

The national law provides that from the sale of this land there shall be established a perpetual fund "the interest of which shall be inviolably appropriated, by each state which may take and claim the benefit of this act, to the endowment, support, and maintenance of at least one college, where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life." The act forbade the use of any portion of the aforesaid fund, or of the interest thereon, for the purchase, erection, or maintenance of any building or buildings.

This land will become available upon the admission of the Territory to statehood.

The legislature of Utah in 1888, accepted the provisions of the national law by the passage of an act which founded the College, defined its policy, prescribed its work, and indicated its sphere.

Sec. 12.—The course of instruction shall embrace the English language and literature, mathematics, civil engineering, agricultural chemistry, animal and vegetable anatomy and physiology, the veterinary art, entomology, geology, and such other natural sciences as may be prescribed, technology, political, rural, and household economy, horticulture, moral philosophy, history, bookkeeping, and especially the application of science and the mechanical arts to practical agriculture in the field.

Sec. 10.—In the appointment of professors, instructors, and other officers and assistants of said college, and in prescribing the studies and exercises thereof, no partiality or preference shall be shown by the trustees to one sect or religious denomination over another; nor shall anything sectarian be taught therein; and persons engaged in the conducting, governing, managing or controlling said College and its studies and exercises in all its parts, shall faithfully and impartially carry out the provisions of this act for the common good, irrespective of sects or parties, political or religious.

It is clear that the Agricultural College was founded in the interest of the industrial classes in the several pursuits and professions of life, to give not alone a technical education, but, in the language of the law, a "liberal and practical education." The legislative founders of this institution sought to place within reach of the producing classes, an education that the older institutions had not, as a rule, made provisions for.

The instructional policy of the College is in consonance with the letter and the spirit of the laws upon which it was founded. Its courses of instruction represent the five great vocations of the people of Utah: agriculture, the mechanic arts, commerce, and home work.

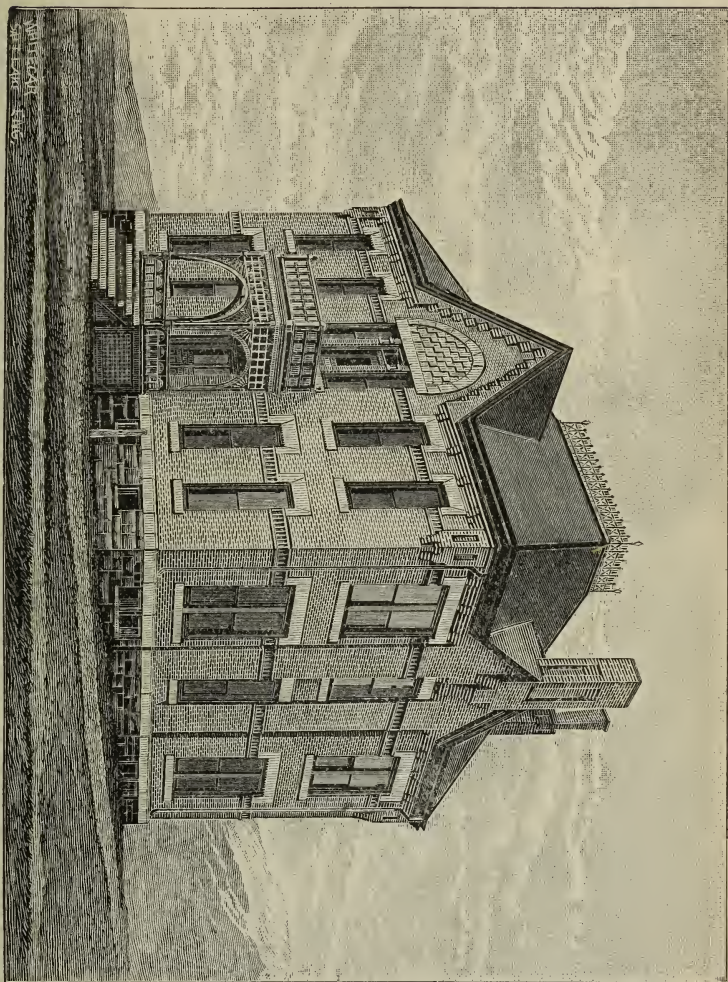
The act of 1862, says Senator Morrill, "proposed a broad education by colleges, not limited to a superficial and dwarfed training, such as might be had in an industrial school, nor a mere manual training such as might be supplied by a foreman of a workshop, or by a foreman of an experimental farm. If any would have only a school with equal scraps of labor and of instruction, or something other than a college, they would not obey the national law."

Under an act of Congress, approved March 2, 1887, the College receives \$15,000 annually for the maintenance of its experimental work in agriculture. This is in charge of the department known as the Agricultural Experiment station.

Under an act of Congress approved March 30, 1880, the College received for its more complete endowment and maintenance "the sum of fifteen thousand dollars for the year ending June thirtieth, eighteen hundred and ninety." The act provides that this amount shall be increased by one thousand dollars each year until the annual appropriation reaches twenty-five thousand dollars. The amount received under this law for the present year will be \$21,000.

Experiment

On the Farm proper there are over three hundred and thirty plats laid out for investigations. These cover time for irrigation, amount of water to use, sub-irrigation, night vs. day irrigation, method of fitting ground for irrigation, trials of varieties of wheat, corn, barley and forage crops; mulching; drilling vs. broadcasting; methods of tillage, time and depth of tillage, methods of plowing, depth and distance of planting, time to sow and harvest, fertilizers and methods of applying, varieties of grass for hay and pasture—tested by actual grazing trials; crop rotations, soil, other studies.



The legislature of 1888 gave \$25,000 for buildings. The county of Cache and the town of Logan gave one hundred acres of land on which to locate the College. The legislature of 1890 appropriated \$48,000 for apparatus, for the employment of teachers, and for the construction of a house, barn, two laborers' cottages, and an experiment station building. The legislature of 1892 gave \$108,000 for an addition to the College building, for two houses, for apparatus, and for salaries of teachers. The legislature of 1894 appropriated \$15,000 for the purchase of apparatus, for a greenhouse, for a veterinary laboratory, and for the employment of teachers. The territorial auditor reports the value of the College property now in possession at the conservative figure of \$211,947.

The Constitution recently framed by the Territorial Convention, for the new State of Utah, provides:

Sec. 4.—The location and establishment by existing laws of the University of Utah and the Agricultural College are hereby confirmed, and all the rights, immunities, franchises, and endowments heretofore granted or conferred, are hereby perpetuated unto said University and College respectively.



Farm House. Residence of the President.

REQUIREMENTS FOR ADMISSION.

1. Graduates of the Eighth grade of the district schools are permitted to enter the Sub-Freshman year without examination.

2. To enter the Freshman year the student cannot be under fifteen years of age, and must pass a satisfactory examination in the following subjects, using the texts named or their equivalents:

1. Reading and spelling.
2. Geography—Appleton's Higher.
3. Either Physical Geography, Maury's or Houston's, or United States History, Barnes'.
4. Grammar—Maxwell's Higher.
5. Arithmetic—Harper's Second Book.

Students may be admitted without examination from an accredited high-school, academy, or other institution, if they present certificates of the completion of the subjects named above.

DIRECTIONS TO STUDENTS.

The regular examinations for new students are held on the first two days of each term. Irregular students are examined when they enter. The studies to be taken are assigned by the examiners and approved by the President.

The entrance fee (\$5) is then paid at the Secretary's office; and the class card naming the studies to be pursued is countersigned by the President and the Secretary. This card admits the student to his classes, and when signed by the several professors entitles him to all the privileges of membership. The student returns this card to the Secretary. The course of study, as thus marked out, cannot be varied by the student except upon petition to the Faculty.

When students enter for the second and third terms, the cards are secured from the secretary of the Faculty, the studies assigned by the President, the cards signed by the professors and returned to the Secretary, as before.

COURSES OF STUDY.

I.—THE FIRST TWO YEARS.

The first two years of all the four year courses (see next page) are the same.

The studies and training of these years have been laid out with care; and students are not permitted to vary from the course shown in the outline, except as herein provided.

1.—Lady students in either course in Domestic Arts take sewing and dressmaking in the freshman year, in the place of shop work in wood and iron, as indicated by the footnote on page 22. In the sophomore year, second term, lady students take lectures on cooking and laboratory practice in cooking in the place of trigonometry and electricity and magnetism; and in the third term, the science of nutrition, and laboratory practice in cooking instead of surveying and elementary mechanics.

2.—In the several short courses, the studies of the first two years are varied far enough to meet the requirements of this class of students

The studies of the first two years are planned to meet the requirements of our most numerous class of students, the majority whom attend for two years or less after completing the studies of the district schools. These two years, as now planned in our schedule, provide as broad a culture in a general way, and as thorough a preparation for the special courses which follow, as we are at present able to offer. Whatever college course, profession, or occupation the student may afterwards undertake, the first two years as planned represent the best preliminary training the College affords. We cannot assume, therefore, to vary the courses further than is indicated above, and students must pursue the studies, or as many of them as they are able to pursue, as here laid down.

The figures denote the number of recitations or the hours of laboratory practice per week.

FRESHMAN YEAR.

FIRST TERM.	SECOND TERM.	THIRD TERM.
HIGHER ENGLISH GRAMMAR. (Whitney's Essentials.)	RHETORIC. (Invention, Figures of Speech and Forms of Composition.)	5 LITERATURE. (Study of Masterpieces.)
PLANE GEOMETRY. 5 (Five books, & Wentworth.)	ALGEBRA. 5 (Elementary, Wentworth.)	5 ALGEBRA. (To Quadratics, Wentworth.)
ELEMENTARY PHYSICS. 3 (Avery's First Principles of Natural Philosophy.)	ELEMENTARY PHYSICS. 3 (Experiments & Recitations.)	3 BOTANY. (Analysis of Flowers & Collection of Herbarium.)
ANCIENT HISTORY. 2 (Eastern Nations and Greece.)	ANCIENT HISTORY. 2 (Rome.)	MEDIAEVAL HISTORY. 2 (European History of the Middle Ages.)

AFTERNOON WORK.

SHOPWORK. 10 Joinery and Wood-turning.)	SHOPWORK. 10 (Forgework in Iron and Steel.)	SHOPWORK. 6 Cabinet-making and Wood-carving.
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Declamations bi-weekly throughout the year.

SOPHOMORE YEAR.

FIRST TERM.	SECOND TERM.	THIRD TERM.
CHEMISTRY. 3 (Non-Metals; Lectures Illustrated by Experiments.)	CHEMISTRY. 3 (The Metals.)	CHEMISTRY. 3 Metals—Chemical Philosophy.
BOTANY. 2 (Compositae, Grasses & Microscopic Work.)	RHETORIC. 2 (Written Arguments & Debates.)	& SANITARY SCIENCE. 3 (Buildings and Foods in Relation to Health.)
ARGUMENTATIVE RHETORIC 2 (Principles, Kinds, and Arrangement of Argument.)	TRIGONOMETRY. 5 (Wentworth's.)	SURVEYING. 2 (Measurement of Areas, Chain Surveys, and Ordinary Surveying.)
SOLID GEOMETRY. 3 (Wentworth's Solid & Spherical.)	POLITICAL ECONOMY. 3 (Lectures and Textbook Recitations from Lav-eleye's Political Economy.)	MECHANICS. 5 (Force and Energy and the Laws of Gases, Liquids, and Simple Machines.)
HIGHER ALGEBRA. 2 (Quadratics & Series.)	CIVIL GOVERNMENT. 2 (Origin and Present Forms of City, Township, County, and State Governments.)	CIVIL GOVERNMENT. 2 (The National Constitution.)

LABORATORY WORK—AFTERNOONS:

CHEMICAL EXPERIMENTS. 6	QUALITATIVE CHEMICAL ANALYSIS. 6	MECHANICS OF SOLIDS, LIQUIDS AND GASES. 2
PHYSICAL MEASUREMENTS. 4 (Heat, Sound & Light.)	PHYSICAL MEASUREMENTS (Electricity and Magnetism.)	SURVEYING. 4 (Field Work.)
		QUALITATIVE CHEMICAL ANALYSIS. 4

COURSE IN AGRICULTURE.

The student of agriculture unceasingly deals with nature, and is thereby brought into daily contact with life and the sciences relating to life. In the management of soils and in the use of tools he comes in contact with physical and mechanical laws, and in the markets, with commercial and political laws. Agriculture deals with more of the sciences than does any other industry; a thorough agricultural education has become more nearly a liberal education, than that necessary to any other industry or profession; and a well educated farmer is also liberally educated as a citizen.

In the course of instruction in agriculture, few studies are involved that are not essential to the most successful farmer. It may be termed a course in the applied sciences.

Heretofore agriculture has been without guiding laws. It is now rapidly becoming the most learned of the industries or professions. The fascination of its living forms and the certainty of its laws may fairly be expected to attract the highest talent. It is one of the best fields for industrial enterprise and for the development of the highest order of intellectual and physical manhood.

The principal and most profitable industry of the valleys of Utah and adjacent States, for many years to come, will probably be that of farming. We therefore recommend to students generally the agricultural course, which has been especially planned to form practical, well-educated, and broad-minded agriculturists.



Stock Yard. Twenty-six feeding experiments with cattle, sheep, horses, and hogs are in progress, some with highly bred and model animals others with average sets.

COURSE IN AGRICULTURE.

FRESHMAN YEAR. (See Page 11.)

SOPHOMORE YEAR. (See Page 11.)

JUNIOR YEAR.

FIRST TERM.		SECOND TERM.		THIRD TERM.	
Agricultural Chemistry.	3	Agricultural Chem.	2	Horticulture.	2
Horticulture.	2	Anatomy and Physiology,	4	Physiology.	3
Literature.	3	Zoology.	2	Geology.	5
Psychology.	3	Logic.	3	Agriculture.	3
Agriculture.	3	Agriculture.	3	German.	3
German.	3	German.	3		

Laboratory Work (Afternoons.)

Bacteriology.	6	Anatomy.	2	Anatomy.	6
Agricultural Practice	2	Horticulture.	2	Agriculture.	2
		Blow-pipe Analysis and Lithology.	6	Field Work in Geology.	2

SENIOR YEAR.

FIRST TERM.		SECOND TERM.		THIRD TERM.	
Dairying.	3	Agriculture.	3	Agriculture.	3
Economic Botany.	3	Entomology.	3	Literature.	5
German.	3	German.	3	Biology.	2
Veterinary Science.	4	Veterinary Science.	4	German.	3
Either		Advanced Economics	4	Veterinary Science.	2
Dairying.	2	Either		Ethics.	2
or		Dairying,		Elective and	
Horticulture.	2	or		Optional.	
or		Horticulture.	2	Dairying.	2
Veterinary Science.	2	or		Horticulture.	2
or		Vet. Science.	2	or	
Sociology.	2			Vet. Science.	2

Laboratory Work (Afternoons.)

Cheese-making		Agricult. Practice.	2	Agricult. Practice.	4
(Mondays.)		Veterinary Science.	4	Veterinary Science.	4
Butter-making.	2	Elective.	2	Optional.	2
Veterinary Science.	4				
Botany.	2				
Elective.	2				

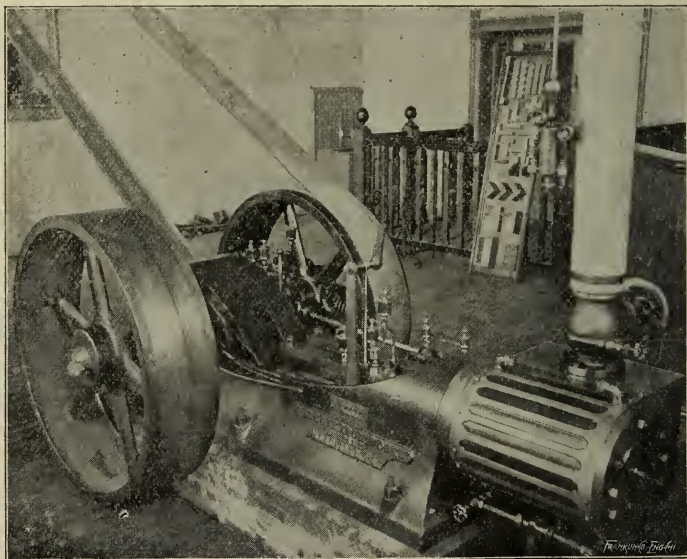
COURSE IN MECHANICAL ENGINEERING.

The course in mechanical engineering aims to equip the student with the special training in pure and applied mathematics that shall qualify him to deal with the engineering problems of his profession. He is made acquainted with engineering practice and thus given a proper groundwork for a professional career.

A thorough course in physics supplements the training in pure and applied mathematics; the subjects of heat, steam engine, steam boilers, electricity, etc., added to the two years of elementary physics, are thought to constitute a good scientific basis for the study of engineering.

The shopwork of the course includes carpentry, pattern-making, forging, chipping, filing and machine-tool work.

The work in drawing comprises the solution of problems involving geometric principles and the principles of projection; sketches of machines and accurate drawings of them; shading, tinting and descriptive geometry.



Engine Room. An 8 x 10 cylinder, automatic cut-off, high speed engine drives the machinery, and is used for experimental work in engineering. Each week a student is detailed to clean, oil, run and regulate the engine.

COURSE IN MECHANICAL ENGINEERING.

FRESHMAN YEAR. (See Page 11.)

SOPHOMORE YEAR. (See Page 11.)

JUNIOR YEAR.

FIRST TERM.	SECOND TERM.	THIRD TERM.
Calculus. 5	Hydraulics. 5	Elemt. of Mechanism 4
Literature. 3	Calculus. 2	Calculus. 5
German. 3	German. 3	German. 3
Desc. Geometry. 2	Desc. Geometry. 2	Metallurgy of Iron
Pattern-making	Analytical Geometry. 5	and Steel. 3
Theory of. 1	Mechanical Drawing. 5	Mechanical Drawing. 6
Mechanical Drawing. 6		

Laboratory Work (Afternoons.)

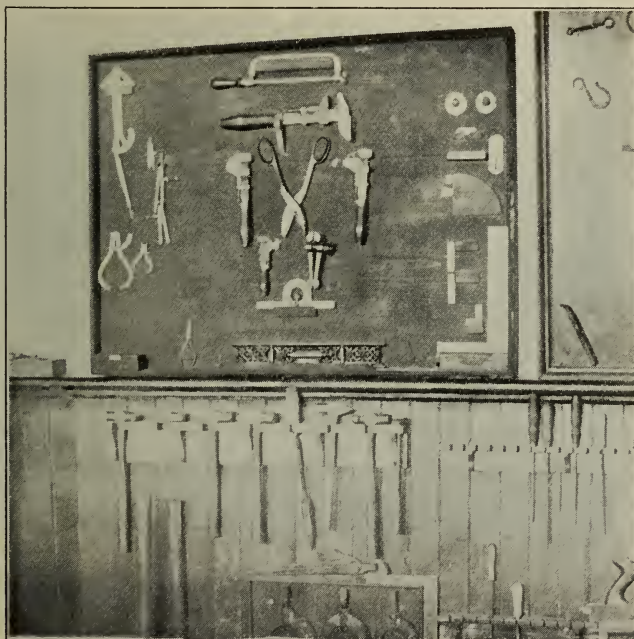
Pattern-making. 10	Machine Work in Iron. 10	Machine Work in Iron. 10
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SENIOR YEAR.

FIRST TERM.	SECOND TERM.	THIRD TERM.
Applied Mechanics. 5	Power, Measurement, and Transmission. 3	Machine Design. 3
Steam Engine. 5	Machine Design. 2	Applied Electricity. 5
Munic. Engineering. 3	Municipal Engineer. 2	Steam Boilers. 5
German. 3	German. 3	German. 3
	Graphical Statics—	
	Roofs & Bridges. 5	

Laboratory Work (Afternoons.)

Drawing & Experimental Work. 10	Drawing & Experimental Work. 10	Drawing & Experimental Work. 10
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Section of Tool Room.

COURSE IN CIVIL ENGINEERING.

The instruction in this course extends over a period of four years, and is designed to afford a training of a practical as well as theoretical nature to such students as are preparing to enter the profession of civil engineering. The course is also intended to qualify young men to fill other positions in life.

In Western America the design and construction of irrigation works, the need of competent managers and superintendents to operate them, and the supervision and control of the public waters, require men trained in body and theory and the practice of hydraulic engineering.

In the construction and operation of municipal works, trained specialists are rapidly taking positions; so that there is reason to hope that in the course of a few years the street supervisors, building and sanitary inspectors, water, sewer, and gas superintendents, and members of the boards of public works in American cities, will be appointed solely on the basis of efficiency in their respective departments.

For the reasons outlined, greater prominence has been given to the studies included in hydraulic and municipal engineering.



Field Work. First class instruments admit the opportunity for accurate, practical work in surveying, gauging, and other branches of civil engineering.

COURSE IN CIVIL ENGINEERING.

FRESHMAN YEAR. (See Page 11.)

SOPHOMORE YEAR. (See Page 11.)

JUNIOR YEAR.

FIRST TERM.		SECOND TERM.		THIRD TERM.	
Calculus.	5	Hydraulics.	5	Calculus.	5
Literature.	3	Calculus.	2	Elements of Mechan-	
Surveying.	2	German.	3	ism.	4
German.	3	Analytical Geometry.	5	Materials of Engin-	
Desc. Geometry.	2	Desc. Geometry.	2	eering.	5
Mechanical Drawing.	5			German.	3

Laboratory Work (Afternoons.)

Field Practice in En-	Drawing and Design-	Mech. Drawing.	2
gineering.	ing.	Hydrographic Survey-	
		ing and Field Prac-	
		tice.	

SENIOR YEAR.

FIRST TERM.		SECOND TERM.		THIRD TERM.	
Applied Mechanics.	5	Power, Measurement		Geology.	5
German.	3	& Transmission.	3	German.	3
Higher Surveying.	5	German.	3	Roads & Pavements.	5
Municipal Engineer-		Municipal Engineer-		Applied Electricity.	5
ing.	3	ing.	2		
Irrigation Engineer-		Irrigation Engineer-			
ing.	2	ing.	3		
		Graphical Statics and			
		Roofs & Bridges.	5		

Laboratory Work (Afternoons.)

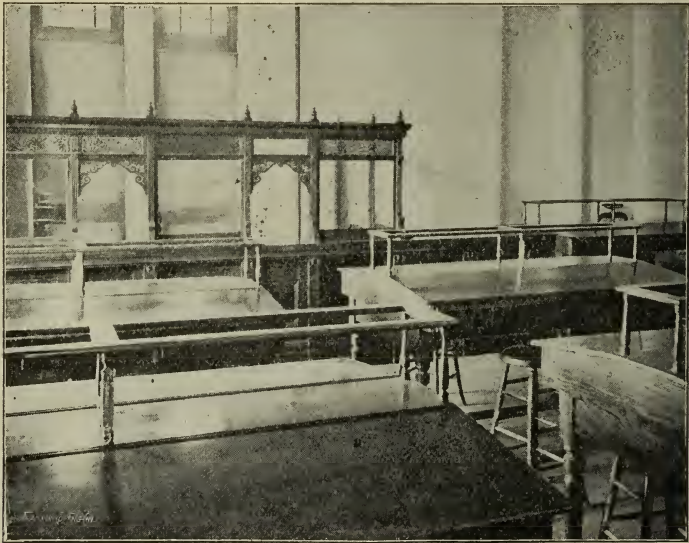
Experimental Work &	Mineralogy & Assay-	Thesis Work.
Engineering and De-	ing.	
signs.		

FARM IRRIGATION AND IRRIGATION ENGINEERING

The College aims to make a specialty of these subjects. As early as the sub-Freshman year lectures on irrigation engineering are given to students in physical geography, in place of much other matter usually studied in that class. Drainage and irrigation, as applied to farms and orchards, are treated at length in the course in agriculture. Irrigation engineering extends over two terms in the Civil Engineering course. The publications of the College on irrigation represent much original investigation of important problems, and the results are of great value to students. Irrigation as a special course is open to those who desire to investigate this subject with practical ends in view; and it is likely that in the near future a four-year course in Irrigation Engineering may be offered.

COMMERCIAL COURSE.

Four years ago, after mature reflection, a commercial course of two years was placed in association with the other courses of the College. This course offered a broader general education than is common in commercial courses. Last year a commercial course of four years was offered, making an entirely new departure in the history of commercial education in this country. This departure was based upon the success of the two years' course and a desire to bring it into harmony with the aim of the institution. This aim is a liberal and practical education for the industrial classes—education for citizenship and for industrial life. No other large industrial class has a more direct and important relation to the material, social and political life of the nation, and it seems that if a general education should be associated with technical education in agriculture, mechanic arts, civil engineering, and domestic arts, it certainly should be associated with the commercial course. The success of the courses has exceeded expectation. This success is ascribed to the practical character of the technical work, and to the fact that associated with the instruction are other studies which give to the student an enlarged view of his varied relations as a citizen of the state. The course is broad enough to prepare the student for teaching, or for entering upon the study of law.



Commercial Room. The bank is furnished with commercial desks, counters, books, and commercial papers, affording opportunities to study banking from a practical standpoint. The same relation exists between it and the students as between a bank and business men in actual life.

COMMERCIAL COURSE.

FRESHMAN YEAR. (See Page 11.)

SOPHOMORE YEAR. (See Page 11.)

JUNIOR YEAR.

FIRST TERM.		SECOND TERM.		THIRD TERM.	
Commercial Arithme- metic.	5	Science of Bookkeep- ing.	4	Typewriting (Op- tional)	5
Literature.	3	Anatomy and Physio- logy.	4	Physiology.	3
Psychology.	3	Logic.	3	Ethics.	2
German.	3	Typewriting (Option- al) or Zoology.	2	Geology.	5
Sociology.	2	German.	3	German.	3
Afternoon Exercises.					
Penmanship.	4	Mineralogy.	6	Geology.	2
Typewriting.	5	Anatomy.	2	Anatomy.	6

SENIOR YEAR.

FIRST TERM.		SECOND TERM.		THIRD TERM.	
Commercial Law.	4	Commercial Law.	4	Commercial Law.	4
German.	3	German.	3	German.	3
Stenography.	4	Stenography.	4	Stenography.	4
Hist. of Commerce.	5	Advanced Political Economy.	2	Literature.	5
		Business Economics.	3		

Practical work in bookkeeping, banking, freighting, insurance, etc.



Typewriting and Stenography.

COURSE IN DOMESTIC ARTS.

The course for young women is in general the same as for young men in the four years' course in agriculture, except in the hours devoted to shop, farm, or horticultural work. In the place of these there are special studies adapted to woman's work.

The value and necessity of special training in household economy are too well known to require explanation.

It will be seen that special attention is given to those branches of study in which young women require proficiency, and to those studies which tend to adorn life in the sphere in which they move.

If the place given to horticulture, floriculture, and economic botany, should require explanation, it may be sufficient to say that this line of work has a fascination for all classes, and everywhere claims the admiration and almost the affection of every person of true refinement. Household plants and the farm and village garden are always objects of interest and of importance to women, and often the source of physical health, inducing, as they do, exercise in the open air. This does not necessitate the added drudgery of physical work in the garden any further than pleasure may dictate. A special class is taught in floriculture, especially as adapted to window gardening; in the preparation of soil, and in the growth of vegetables and small fruits.

Exercises in the application of the knowledge acquired in the lecture room are a regular feature of the work. Lectures on chemistry are succeeded by cooking. (Sophomore year, page 22) The cooking exercises are accompanied by practice in table-setting, table-waiting, and presiding at the table as hostess.

A term's work is given to the study of foods, with reference to their special effects on the human system in both health and disease; and about twenty-four lessons on cooking for the sick are offered in the last term.

In dressmaking (Freshman year, page 22) gowns are cut out, basted, fitted, draped, trimmed and entirely finished by the student. Regular practice is given in the care of the machine,

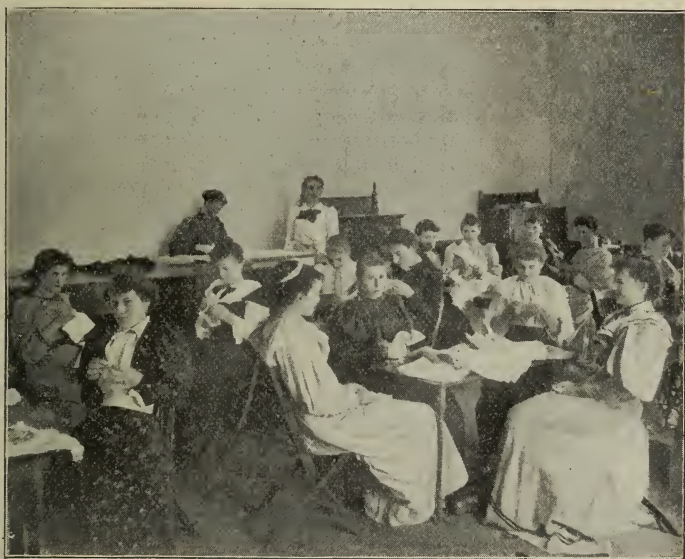
and its mechanism is illustrated. The students furnish materials and make their own clothing.

In dairying very decided attention is given to this most important field of work, over which woman has general charge. Fortunately, the more exacting work of the dairy now falls to other hands, but the necessity remains for mastery by women of the philosophy of dairying.

A special course of lectures on hygiene is given to the young women of this course.

A term in geometrical drawing and a term in advanced drawing have been included, in order that those students who have a taste for these accomplishments may acquire them.

A term in aesthetics, the science of taste and beauty, and a term of ethics, have been added to this course, in the belief that these studies will give culture and refinement, besides furnishing wholesome mental discipline in the analysis of philosophic theories and systems of thought.



Sewing Room. Sewing machines, tables, and models for cutting and fitting are supplied free to the student for regular daily instruction in dressmaking, fancy work, millinery, etc.

COURSE IN DOMESTIC ARTS.

FRESHMAN YEAR.

FIRST TERM.	SECOND TERM.	THIRD TERM.
Higher English Gram- mar. 5	Rhetoric. 5	Literature. 5
Plane Geometry. 5	Algebra. 5	Algebra. 5
Military Drill & Phy- sical Culture. 2	Military Drill & Phy- sical Culture. 2	Military Drill & Phy- sical Culture. 2
Element. Physics. 3	Mediaeval History. 2	Botany. 3
Ancient History. 2	Element. Physics. 3	Mediaeval History. 2
Laboratory Work (Afternoons.)		
Laundry & Sewing. 5	Sewing. 5	Dressmaking. 5

Declamations bi-weekly throughout the year.

SOPHOMORE YEAR.

FIRST TERM.	SECOND TERM.	THIRD TERM.
Chemistry. 3	Chemistry. 3	Chemistry. 3
Botany. 2	Rhetoric. 2	Floriculture. 2
Argumentative Rhet- oric. 2	Lectures on Cooking. 4	Sci. of Nutrition. 4
Geometry. 2	Political Economy. 3	Sanitary Science. 3
Modern History. 3	Civil Government. 2	Civil Government. 2
Higher Algebra. 2		

Laboratory Work (Afternoons.)

Physic. Measur'm't's. 4	Chemical Analysis. 6	Practice in Cooking. 4
(Heat, Sound & Light.) Chemistry. 4	Prac. in Cooking. 4	Chemical Analysis. 3

JUNIOR YEAR.

FIRST TERM.	SECOND TERM.	THIRD TERM.
Horticulture. 2	Physiology. 4	Anatomy & Physio- logy. 3
Literature. 3	Designing, Cutting & Fitting. 5	Geology. 5
Psychology. 3	Logic. 3	Millinery. 2
Geometrical Draw. 5	Zoology. 2	German. 3
German. 3	German. 3	Hygiene. 4

Laboratory Work (Afternoons.)

Bacteriology. 6	Anatomy. 2	Anatomy. 6
Fruit Work. 4	Mineralogy & Lithol- ogy. 6	Geology. 2

SENIOR YEAR.

FIRST TERM.	SECOND TERM.	THIRD TERM.
Dairying. 3	Fancy Work. 3	Ethics. 2
Aesthetics. 3	Entomology. 2	Literature. 5
Household Manage- ment. 4	German. 3	German. 3
German. 3	Advanced Cooking. 2	Biology. 2
Either	Advanced Economics. 2	and
Drawing. 2	Either	Dairying. 3
or	Dairying. 2	or
Economic Botany. 3	Drawing. 3	Astronomy. 5
or	Horticulture. 2	
Sociology. 2		

Laboratory Work (Afternoons.)

Cheesemaking (Mon- days.) 2	Horticult. Practice. 4	Horticul. Practice. 2
Buttermaking. 2	Elective. 5	Elective. 5
Economic Botany. 2		

The first two years of the ladies' course are the same as the first two years of all the other courses with the exceptions here noted:

Lady students in Domestic Arts take sewing and dress-making in the place of shopwork.

Lady students in Domestic Arts take lectures on cooking 4, in place of trigonometry; laboratory practice in cooking 4, in place of electricity and magnetism; science of nutrition 2, in place of mechanics and surveying; and practice in cooking 4, in place of field work in surveying.

COURSE IN ELECTIVE SCIENCE.

This course is believed to be especially adapted to the need of those preparing to study medicine or pharmacy, or to take higher technological training abroad. It will also be an exceptional preparation for those who expect to engage in teaching, especially in the teaching of the natural and physical sciences.

The student will select either biology or chemistry, or physics, and will take all the subjects specified under the subject so elected. He must then select, from the other College courses, subject to the approval of the head of the department, enough subjects to complete his course.

FRESHMAN YEAR. (See Page 11.)

SOPHOMORE YEAR. (See Page 11.)

JUNIOR AND SENIOR YEARS.

Either biology, or physics, or chemistry, as follows

BIOLOGY.

Anatomy & Physiology.....Two Terms.	General Biology.....Three Terms.
Bacteriology.....One Term.	Zoology, advanced.....One Term.
Entomology.....One Term.	Anthropology.....One Term.
English Literature.....Two Terms.	German.....Six Terms.
Sociology.....One Term.	

CHEMISTRY.

Agricult. Chemistry....Two Terms.	Organic Chemistry.....Two Terms.
Gen. Analyt. Chem....Three Terms.	German.....Six Terms.
English.....Two Terms.	Mineralogy.....One Term.
Geology.....One Term.	

PHYSICS.

Advanced Physics.....Six Terms.	Heat.....One Term.
Electricity.....Two Terms.	Strength of Materials.Two Terms.
Geology.....One Term.	Analytical Geometry...Two Terms.
Descriptive Geometry..Two Terms.	Calculus.....Three Terms.
German.....Six Terms.	English Literature.....Two Terms.

The additional electives are to be chosen subject to the approval of the professor in charge of the department in which the major work has been chosen.

OUTLINE OF COURSES AND ANALYSIS OF SUBJECTS.

The work of the College may be classified under the following departments of instruction:

Agriculture, Biology, Botany, Chemistry, Civil Engineering, Commercial Branches, Dairying, Domestic Arts, Drawing, English, German, Geology and Mineralogy, History, Horticulture and Entomology, Irrigation Engineering, Mathematics, Mechanic Arts, Mechanical Engineering, Military Science and Tactics, Oratory and Declamations, Physical Culture, Physics, Philosophy, Political Science and Sociology, Sewing, and Veterinary Science.

AGRICULTURE.

Professors Fischer and Mills.

Three exercises a week for two years are given to technical instruction in agriculture. Few works on agriculture are adapted for use as text books and the greater part of the instruction is given by lectures and field exercises. The lectures are based on the works of standard writers, supplemented by the results obtained at the different experiment stations in this and other countries.

The work includes the following subjects:

HISTORY OF AGRICULTURE

A general outline of agricultural development in the older countries from which we derived our practices; the introduction of machinery, with special reference to its development in this country.

FARM FENCES AND BUILDINGS:

A description of the different kinds of fences and materials, with the advantages and disadvantages of each; the best methods of gate-making and the setting and bracing of posts; preservation of posts and the

prevention of rot in timbers; the location, plans, and necessary features of farm buildings. The student is required to draw plans and elevations of a farm house, barn, piggery, and sheep pen, which are criticised by the class and then drawn in ink and preserved for future use.

Books of Reference: Convenient houses with fifty plans for the housekeeper—Gibson; barn plans and out-buildings, stables and outbuildings—Bicknell; barn buildings—Sanders.

Jun. Ag. I, 3.

ABBREVIATIONS :

The following abbreviations are used: A g. Agriculture (course in); D. A., Domestic Arts; M. E., Mechanical Engineering; Civ. E., Civil Engineering; Com., Commercial; El. Sc., Elective Science; Fresh. Freshman; Soph., Sophomore; Jun., Junior; Sen. Senior; I, II, III, first, second and third terms; 2, 3, 5, etc., denote the number of recitations or the hours of laboratory practice per week.



A Model is connected with the department of agriculture. It contains a **Barn** silo, a root cellar, an engine room, quarters for swine, for sheep, for cattle, for horses, for hay and other coarse fodder; for grain, for tools and for horticultural uses.

FARM MACHINERY: The general mechanical principles involved in machines and the laws that govern machines, with their special application to agricultural machinery; the variation of draft in the same and in different machines and farm implements illustrated by the use of the dynamometer in the field.

Books of Reference: Farm Implements and Farm Machinery, Thomas; Bulletins Nos. 2, 4, 6 and 7 of the Utah Experiment Station, and Bulletins Nos. 32 and 4 of the Missouri Station.

Jun. Ag. I, 3.

FARM IRRIGATION: The history of irrigation and the development of different systems of irrigation in the older countries, with the general development and best applications under local conditions; acquisition of "water rights" and the relation of the "stockholder" to the "company;" amount of water to use for the different crops, and different methods of applying water.

Books of Reference: Irrigation in Egypt, Barrios; Irrigation Development and Irrigation in Southern California, Hall; Irrigation for Farm, Garden and Orchard, Stewart.

DRAINAGE: The benefits of drainage, the soils that need drainage, with special reference to the drainage and reclamation of alkali soils; the laying out of a proper system of drains, with the material used.

Books of Reference: Drainage for Profit and Health, Waring; Farm Drainage, French; Land Drainage, Klippart.

Jun. Ag. II, 3 for the two courses.

FARM CROPS: The history, uses, composition, production, and adaptability of different crops to local conditions; the crops best suited for different rotations, and the grasses best suited for meadows and pastures, with the common noxious weeds, are especially dwelt on.

SOILS AND FERTILIZERS: Waste by Fermentation; the leaching and loss of nitrogen; preservation; manure of different animals and from different feeding stuffs; green manuring; methods and rate of applying. The origin, formation, improvement and general cultivation of soils; special attention is paid to the improvement of soils by irrigation, drainage, cultivation, rotation, and fertilizers, and the effects that each has on the physical properties of the soil, following the work of Professors Whitney, King and Hilgard.

Books of Reference: Sorghum, Collier; Grasses of North

America, Beal; Wheat Culture, Curtis; Plant Life of the Farm, Masters.

Reference Books: Rocks and Soils, Stockbridge; Soils of the Farm, Scott and Morton; Clay Lands and Loamy Soils, Donaldson; How Crops Feed, Johnson; Some Physical Properties of Soils in Their Relation to Moisture and Crop Distribution, Whitney.

Jun. Ag. III, 3.

STOCK FEEDING. Composition of the animal body; the processes of digestion and absorption; the part that each food takes in replacing the wastes of the body or in producing heat or power or in laying on fat.

Books of Reference: A Treatise on Manures, Griffiths; Manures and Manuring, Aikman; Talks on Manures, Harris.

FEEDING STUFFS: Composition, digestibility, palatableness, and general characteristics of hay and other fodders and the different grains.

Jun. Ag. III, 3.

FEEDING FOR SPECIAL PURPOSES. Nutrients; feeding standards; calculation of proper rations; fuel value of foods and rations; maintenance rations and excess food; the feeding of work animals with the discussion of the source of power; feeding for meat production in beef, mutton and pork; feeding for fat or for lean meat, with the influence of the different foods on the carcass and the vital organs, and in regard to the health of the animal.

Sen. Ag. Elective:

Books of Reference: Feeding Animals, Stewart; Manual of Cattle Feeding, Armsby.

Aside from the books of reference given under the different headings there are many works on general agriculture as well as the bulletins and reports of the experiment stations of the different States and Territories, the publications of the department at Washington, with many others from Canada and other countries. Added to these is a list of about one hundred of the best farm journals of this and other countries, all of which are available to the students. All of the work detailed under agriculture is required of students in either the short or the long course in agriculture.

DAIRYING.

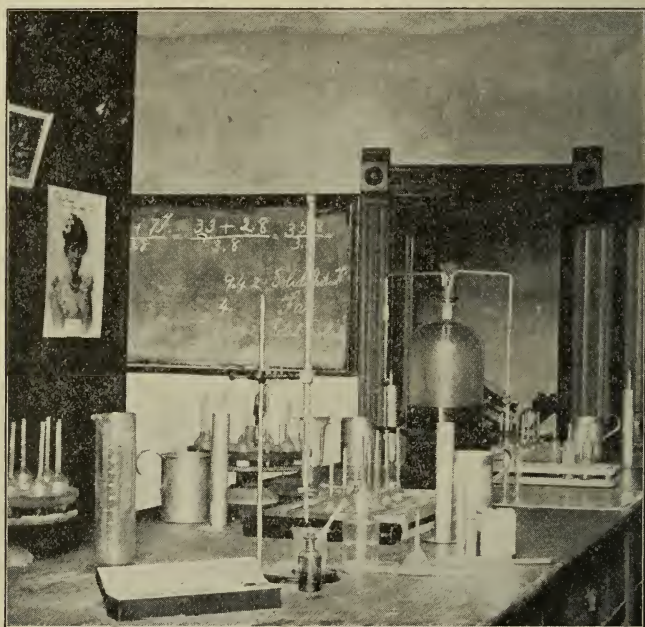
Professor Linfield.

Instruction in this subject is given by lectures supplemented by practical work in the dairy, three times a week during the fall and twice a week during the winter and spring terms.

MILK TESTING: The elaboration, composition, and fermentation of milk; the cheapest and most accurate method of testing, with practical applications.

BUTTERMAKING: The creaming of milk by different methods; the handling of cream; churning; working and packing butter for market.

CHEESEMAKING: Both factory and farm dairy methods of manufacture are dealt with; how to make a uniform product and to deal with practical difficulties.



Milk Testing. Milk is one of the most complex and unstable of compounds presenting in its management difficult and interesting problems. These receive practical investigation in well-supplied laboratories.

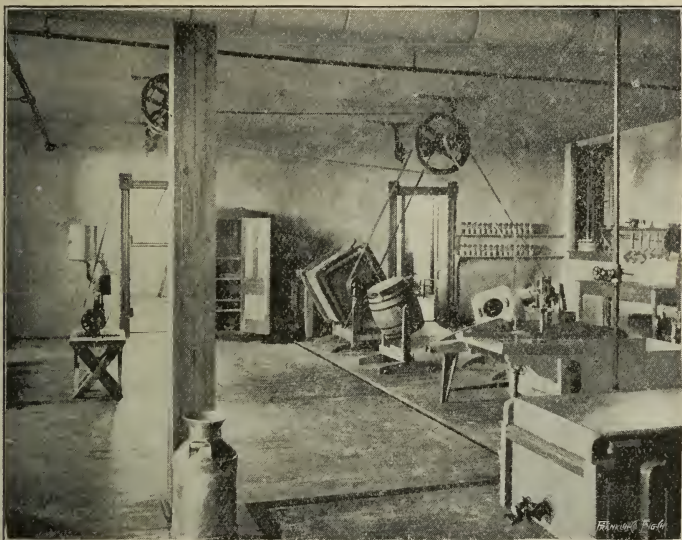
In the dairy laboratory, butter and cheeserooms, the lessons of the class room are put in practice by the students.

Books of Reference: Gurler's American Dairying; Decker's Cheddar Cheesemaking; Schoenman's Milk Testing; Grotenfelt's Principles of Modern Dairy Practice; Russell's Dairy Bacteriology.

Dairying is required of all Senior students in both long and short courses in agriculture and domestic arts.

Sen. D. A., and Ag. I, 3.

PRACTICAL WORK: Cheesemaking each Monday, and buttermaking and milk testing two afternoons of the week throughout the year.



The Dairy occupies five rooms covering a space of 36x80 feet, and is equipped with modern conveniences for the production of the best grades of butter and cheese. Here students apply in practice the theories learned in the classroom.

ANIMAL HUSBANDRY.

Professor Linfield.

Lectures and the practical handling of the different breeds of livestock; the history and description of the various breeds of horses, cattle, sheep, swine, and poultry and their management, and the science and practice of breeding.

HISTORY AND DESCRIPTION of the different breeds of live stock, their origin and development into the specialized animals of today; effects of soil, climate, and management on the animals.

BREEDING: The laws of reproduction; heredity; reversion; correlation; variation; fecundity; in-and-in breeding; cross breeding; selection; period of gestation, and pedigree.

References: Curtis' Breeds of Domestic Animals; Sanders' Breeds of Livestock; Coburn, Swine Husbandry; Stewart, Shepherd's Manual; Randall's Practical Shepherd; Stonehenge, The Horse in the Stable and Field; Miles, Stock Breeding; Sanders, Horse Breeding; Warfield, Cattle Breeding.

PRACTICAL WORK: Two hours a week for the second half of the fall term, and four hours a week for the spring term of the Senior year.

BIOLOGY.

Professor Brewer.

BIOLOGY: The course of lectures on General Biology and the accompanying laboratory work will cover the usual range of topics. The difference between living and dead matter will be



The Biological Laboratory is well supplied with microscopes and other apparatus for research according to approved modern methods.

reviewed, and each subject as protoplasm, cells, tissues and organs will be considered as an introduction to specialized work. Types of the lower vegetable kingdom (not included in the botanical course) and selections from the invertebrate and vertebrate divisions of animal life will be taken for illustration and for examination in the laboratory.

Sen. Ag. III, 2

ZOOLOGY. A comparative review of the various functions concerned in animal life and their applicability to the environments of the different classes of animals; the classification of the animal kingdom, and the morphology and the attributes of its different members; the distribution of animals according to place and time; their present location and their primeval forms.

Jun. Ag. and Com. II, 2.

FUNGOLOGY AND PROTOPHYTOLOGY: So much of these subjects as relates to the moulds, ferments, etc., which are important factors in human and animal life, will be treated of in lectures and illustrated in the laboratory. Algae, diatoms, desmids, etc., will also be discussed and illustrated.

Jun. II, 2, El. Sc.

ANTHROPOLOGY: A short course will be included, in continuation of the general course, discussing the different types of the human race, existent at the present time in the various countries of the world; their relations, origin, and tribal differences; their dwellings and their implements.

Jun. or Sen. El. Sc.

BACTERIOLOGY: This special branch of science, which has, during the last decade, made great strides, and which is so intimately connected with diseases affecting both man and animals, will occupy a full course of lectures and also receive adequate laboratory exemplifications. Research work in the germ causatives of disease, especially of animals, will be made in connection with the experiment station and students will be familiarized with the processes used in bacteriology, such as the preparation of culture media, the culture and separation of germs, staining and mounting specimens of various bacteria, making sections of tissue, etc, and general microscopical work.

The laboratory contains a full set of apparatus for the work of investigation, similar to that used in the laboratories of Professor Koch in Berlin, and of Professor Pasteur in Paris. Microscopes, microtomes, and the general accessories of laboratory

investigation will also be used by the students. It is intended that the courses shall be so directed as to be of practical value after the College curriculum has been completed.

Jun. Ag. Com. and El. Sc., 1, 6



Bacteriology.

Cultivation of bacilli and their examination and identification under the microscope make part of the work of this department.

SANITARY SCIENCE: A course of lectures on the general principles of Sanitary Science as applied to the selection of sites for homes and the erection of the house; ventilation and heating; water supply and its uncontaminated preservation; removal of refuse and waste; food, its uses and abuses; adulterations of foods, their detection and general hygienic subjects.

Soph. III, 3.

BOTANY.

Professor Fischer.

ELEMENTARY BOTANY: Analysis of at least forty spring flowers; the preparation of a herbarium, and the drawing of one complete specimen—foliage, flowers and fruit. Botany commences in third term Freshman in all courses. The student will become familiar with the structure of plants and lay a foundation for more advanced work in botany in the fall term Sophomore.

Fresh. III, 3.

ADVANCED BOTANY: The composite, grasses, and cryptograms; microscopic dissections exhibiting the minute structure of plants; lectures on the physiology of plant life.

Soph. 1, 2.

ECONOMIC BOTANY: Microscopic investigation of rust, smut, and mould, with methods of exterminating the injurious species. Food plants—their origin and uses. Methods of exterminating noxious weeds.

Jun. Ag. I, 2.

BOTANICAL LABORATORY: Work with the compound microscope—simple objects, the cell and its contents—starch, protoplasm, etc.,—with special attention to the structure and life of the lower cryptograms.

Sen. Ag. I, 4.



Green House and Dissecting Room.

CHEMISTRY.

Professor Widtsoe.

ELEMENTARY PRACTICAL CHEMISTRY. This course supplements course I and furnishes the necessary practical preparation for qualitative analysis. The non-metallic elements, mainly, are studied with reference to their combinations with each other;

their reactions are determined and verified, and the facts and theories of the lecture room are tested by experiments. This course can only be taken in connection with course I.

Soph. 1, 6.



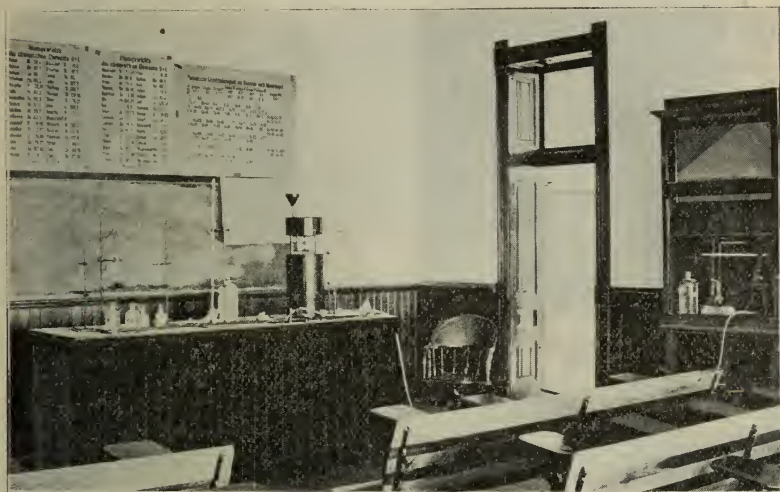
The Chemical Laboratory is large and well lighted and ventilated, fitted with hoods, gas, water, and individual tables to accomodate sixty students.

QUALITATIVE ANALYSIS. This course runs parallel with and supplements the descriptive study of the metals and their compounds. Under the direction of the instructors in chemistry the students apply with their own hands the reagents necessary to determine the composition and properties of chemical compounds. They thus gain a practical knowledge of the methods of chemical analysis and manipulation. Each student is required to analyze and report on forty unknown substances. This work is deemed extremely important from an educational as well as from a practical point of view

Soph. II, 6.

AGRICULTURAL CHEMISTRY. A series of lectures treating of the chemical problems of agriculture; composition of plants; sources of plant food; manures, general and special; chemistry of animal nutrition; soils and dairy products. Students who are interested in this subject will be permitted to take laboratory work in connection with the lectures.

Jun. Ag. I, 3, II, 2.



Class Room in Chemistry.

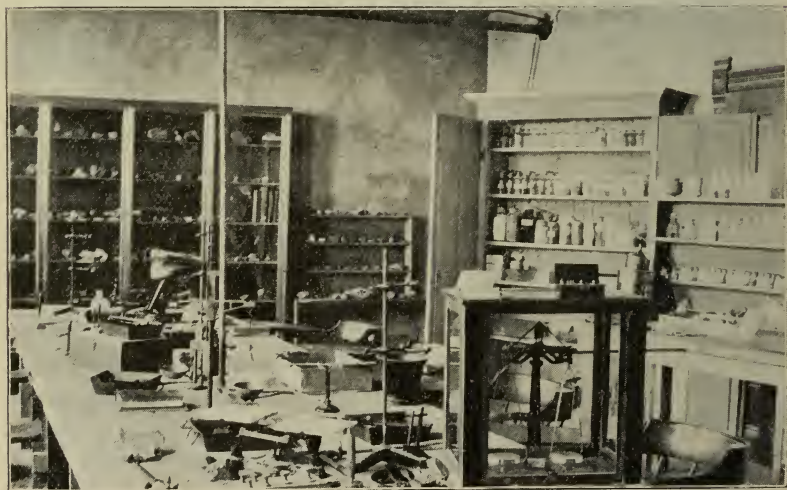
Note: Each student taking a laboratory course in chemistry is required to deposit \$3 for the first term, and \$1 for each succeeding term to pay for chemicals and to cover breakage, etc.

ORGANIC CHEMISTRY: This course is planned for students who intend to fit themselves for professional work in chemistry. It consists of a brief survey of the reactions and compounds of the fatty and aromatic series of hydrocarbons and their derivatives; together with a full discussion of the nature and influence of molecular structure. In the laboratory the student makes a number of organic preparations which in their formation involve the methods of oxidation, reduction, substitution and synthesis.

Jun. or Sen. El. Sc. I, II, 2.



Chemical Laboratory No. 2.



Mineralogical Laboratory. The room for blow-pipe analysis and wet and dry determinations of minerals is supplied with gas and hydrant-water, and with all necessary reagents and apparatus for assaying and practical mineralogy.

GEOLOGY AND MINERALOGY.

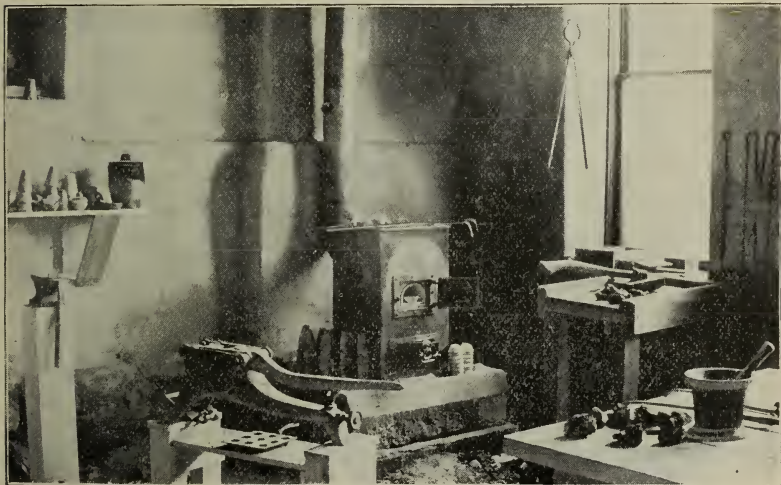
Professors Caine and Widtsoe.

MINERALOGY AND ASSAYING. A systematic study of the important mineral species according to Dana's classification. Much practice is given in blow-pipe analysis and Determinative Mineralogy, and in connection with the former are taught the simple methods of dry assaying. To those especially interested in the subject opportunities are given for practice in all methods of dry and wet assaying.

Jun. Ag. and Sen. Civil Eng. II, 6.

GEOLOGY AND LITHOLOGY. A course in general and economic geology in which particular attention is given to Dynamical and Structural Geology. Along with the occurrence of rocks is studied also their mineralogical composition. The instruction is based on a text-book supplemented with lectures. Weekly excursions give practice in geological field work and material for reports.

Jun. or Sen. III.



Assaying Room. Regular practice in Assaying for Gold, Silver, Lead and Copper, is included in Mineralogy. Last season about one hundred assays of native ores were made. A large brick furnace for use in metallurgy is in course of construction.

CIVIL ENGINEERING.

Professor Fortier.

HYDRAULICS. The fundamental laws governing the equilibrium of fluids; the flow through orifices and pipes, over weirs and in open channels; the measurement of water; the action of water upon vanes, water-wheels and pumping engines.

Text Book: Merriman's Hydraulics.

Jun. Civ. and M. E., II, 5.

IRRIGATION ENGINEERING. The location, grades, cross-sections, etc., of canals; the design and construction of flumes, head-gates, diversion weirs and dams; pipe irrigation and inverted siphons; rainfall, evaporation and seepage; methods of irrigation; duty of water; windmills, artesian wells, etc.

Text Books: Wilson's Manual of Irrigation and other works of reference.

Sen. Civ. E., I, 2.

ELEMENTARY SURVEYING. The adjustment of instruments, the location of railways, pipe lines and canals, city, mining, and hydraulic surveying. Field practice in the afternoons of the first and third terms.

Text Book: Johnson's Surveying.

Jun. Civ. I, 2, II, 3.

HIGHER SURVEYING. Measuring base lines, triangulation, practical astronomy, the determination of the meridian, time, latitude, longitude, etc.

Text Books: Johnson's Surveying; Merriman's Geodesy.

Sen. Civ. E., I, 5.

APPLIED MECHANICS. Shearing force and bending moment; equilibrium of beams, fatigue of metals, energy, impact, centrifugal force; friction; strength of cylindrical boilers and pipes; torsional strength of shafts; column formulae.

Text Book: Bovey's Theories of Structures.

Sen. Civ. and M. E., I, 5.

GRAPHICAL STATICS. The analytical and graphical methods of determining stresses in framed structures and the design and proper proportioning of bridges, flumes, head-gates, dams, retaining walls, trestles, roofs, arches.

Sen. Civ. E., II, 4.

MATERIALS OF ENGINEERING. Daily lectures throughout the last term to supplement the practical knowledge obtained in the carpentry, blacksmith, foundry, and machine shops, by notes on stone, brick, lime, cement, iron, steel, and alloys.

Jun. Civ. E., III, 5.

ROADS AND PAVEMENTS. Country roads and highways, their location, construction and maintenance; the paving of city streets and sidewalks; the materials used and mode of construction.

Text Book: Bryne's Highway Construction.

Sen. Civ. E, III, 5.

ROOFS AND BRIDGES. The application of the study of applied mechanics to roofs and bridges; dead and live loads; lateral truss systems; pin connected structures; rivets and riveting; marketable forms of iron and steel and their application in the design of roofs and bridges.

Text Book: Johnson's Theory and Practice of Modern Framed Structures.

Sen. Civ. E, III, 4.

MUNICIPAL ENGINEERING. Embraces water-works systems; gas and electric lighting; rapid transit and sewerage.

Sen. Civ. and M. E, I, 5.



Samples of Iron Work.

SUMMER REPORT. Each student upon entering the senior year in civil engineering is required to present a report prepared by himself during the summer vacation on some structural work connected with the profession.

COMMERCIAL BRANCHES.

Professor Shepard.

PRACTICAL BOOKKEEPING. The student obtains some capital, rents a place of business, deposits his money in the bank transacts all kinds of business, thereby bringing into daily use such business forms as notes, drafts, checks, bill heads, statements, shipping invoices, account sales, receipts, deposit slips, certificates of deposit, mortgages, deeds, leases, insurance policies, bills of exchange, bills of sale. He is keeping books according to the shortest and most approved methods in various kinds of business, such as general merchandise, grocery, dry goods, clothing, coal, lumber, furniture, drug, jobbing, commission and shipping, brokerage, real estate, and for joint stock companies and corporations. Various business relations are entered into in the formation of agencies, partnerships, joint stock companies and corporations.

Sen. Com. I, II, III, 10.

HISTORY OF COMMERCE AND COMMERCIAL GEOGRAPHY.

Recitations and lectures. The student will make a careful study of the principal countries of the world from which such staple articles of commerce as food, textile and mineral substances, metals and manufactured products are obtained. He will note the kinds and amount of such products from those countries, and the dependence of each upon every other for the necessities and luxuries of life; how markets are created and controlled; how waterways and railways afford a ready means of transportation and influence trade; and how the improved mail, postal, telephone and telegraph services facilitate the interchange of thought and also influence trade. Statistics will be gathered showing the magnitude of the world's production. Practical commercial problems of the day will be discussed in class.

Sen. Com. I, 5.

COMMERCIAL LAW. A study of the customs and the law of the nature, formation, operation, interpretation, and discharge of contract; including domestic relations, agency, partnership, corporation, bills, notes and checks, purchase and sale of personal property, guaranty or suretyship, limitation of the time to sue, commission merchants and brokers, agreements for personal services, bailments, insurance, telegraphic communication, patents, copyright, trade marks, real estate conveyances, and the business of legal forms that are used to carry on trade. It is our object to prepare students for a position in the world as business men rather than mere clerks; hence the prominence given to this subject.

Sen. Com. I, II, III, 4.

COMMERCIAL ARITHMETIC AND RAPID CALCULATION. Daily drill in addition, multiplication, division, fractions, measurements, metric system, percentage, profit and loss, commission, interest, discount, storage, equation of accounts, partnership settlements, and all the problems that the average business man is called upon to solve. Short methods are studied and practical devices presented.

Jun. Com. I, 5.

COMMERCIAL ECONOMICS. The economic laws of trade, the general principles of Political Economy technically applied to commerce, and a discussion of business methods.

Sen. Com. II, 3.

PENMANSHIP. A plain legible style of writing with a rapid movement is taught. Daily throughout the year. Required of commercial students; elective to others.

Fresh I, II, III, 5, Hyde.

SCIENCE OF BOOKKEEPING. The underlying principles of single and double entry book-keeping; opening and closing books; journalizing, posting, classifying accounts, etc. Especial attention is given to making the original or charge entry, the legal as well as the scientific feature of the entry being kept in mind.

Jun. Com. II, 4.

STENOGRAPHY. An elective study for second year students in the short commercial course, and for Senior students in the four years' commercial course. Graham's system of Standard Phonography is taught. The class is given one hour's instruction daily throughout the year.

Text Book: Graham's Handbook.

Sen. Com. I, II, III, 5, Dryden.

TYPEWRITING. An optional study for first year students in the short commercial course. Required of Junior students in the four years' commercial course. Three different makes of machine are used, viz., the Remington, the Caligraph, and the Smith-Premier. There are nine machines for use of students. An hour a day is given to typewriting throughout the year.

Jun. Com. I, II, III, 3. Dryden.

DRAWING.

ELEMENTARY DRAWING. Practice in freehand, leading to the use of instruments.

Sub. Fresh. I, II, III, 2.

MECHANICAL DRAWING. Several courses are given. See under Mechanic. Arts and Mechanical and Civil Engineering.

GEOMETRIC DRAWING. Chiefly plane work for patterns and designs.

Jun. D. A, I, 5.

ADVANCED DRAWING. Sketching, shading and tinting.

Sen. D. A, II, 3.



Mechanical Drawing Room. Large, technical works on drawing are furnished by the college. Each student in the engineering courses must purchase, under the advice of the teacher, a set of good instruments.

DOMESTIC ARTS.

Mrs. Cotey.

LECTURES ON COOKING. Scientific basis of the art is given by a course of lectures treating of the selection, care, and preparation of food.

Soph. D. A, II, 4.

SCIENCE OF NUTRITION. The relative values of different foods in repairing the waste of the body; a study of the physiological processes of digestion and assimilation; proper quantity, kind, and quality of food necessary.

Soph. D. A, III, 4.



The Kitchen is supplied with model work tables, range, gas, and water, and with implements for the preparation and cooking of food.

PRACTICE IN COOKING. Daily preparation of meals for guests; table-setting, serving, and presiding at table.

Soph. D. A, II, III, 4.

FRUIT WORK. Canning of native fruits; making of jellies, sauces, pickles, preserves, etc.

Jun. D. A, I, 4.

HYGIENE. Course of lectures on personal hygiene for women.

Jun. D. A, III, 4.

HOUSEHOLD MANAGEMENT. Study of economy of time and strength in performing home duties; the arrangement of entertainments; relations of mistress to maid and of the housekeeper to her environments; convenient arrangement and artistic and economical furnishing of rooms.

Sen. D. A, I, 2.

ADVANCED COOKING. Study of dietaries for the healthy person; the proper foods to be given in different diseases; practice in proper methods of cooking for the sick.

Sen. D. A, II, 2.

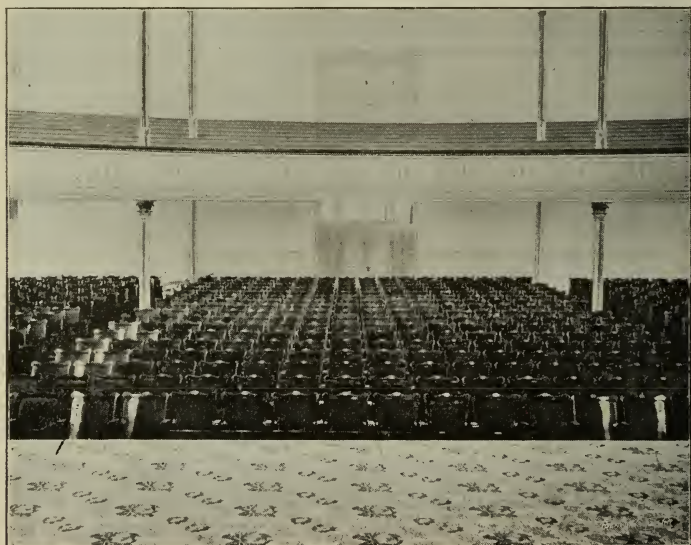
See also under Sanitary Science, Sewing, Drawing, and Horticulture.

ENGLISH CLASSICS, ELOCUTION AND DECLAMATION.

Miss Kenyon.

It is the object of this department to make good readers, better conversers and good speakers; to make the voice and the body fit instruments to serve the soul and mind. The course then will include the development of the voice and the training of the body to respond to the changes of the soul's emotion.

ENGLISH CLASSICS. The work consists of a study of some of the minor English Classics. Those read during the past school



The Chapel. has a seating capacity of 1,500 and is used for public meetings and students' entertainment.

year were, Scott's Lady of the Lake, Longfellow's Miles Standish, Pope's Essay on Criticism, Arnold's Sohrab and Rustum, and Shakespeare's Julius Caesar. The object of this work is to create a taste for good literature and to furnish profitable drill in the art of reading.

Sub-Fresh, I, II, III, 2. Elective to Others.

ELOCUTION. 1. Physical culture, voice culture, articulation and light reading.

2. Inflection, pronunciation, gesture, and expressive reading.

3. Gesture continued, practical work in recitations and impersonation.

Sub-Fresh, I, II, III, 3. Elective to Others.

DECLAMATIONS. The reading or recitation of themes and essays prepared under the direction of the professors in different subjects.

Fresh, bi-weekly throughout the year.

ENGLISH LANGUAGE AND LITERATURE.

Professor MacEwan.

HIGHER ENGLISH GRAMMAR. The work in English embraces grammar, rhetoric and literature, and runs parallel through all the four-year courses. In grammar, after a review of etymology, with special attention to the formation of the verb, the structure of the English sentence is carefully examined. Nearly a term is spent in analyzing sentences from classic authors..

Fresh, I, 5.

ELEMENTARY RHETORIC. The principles of invention, the elements of style and the different forms of composition. The preparation of manuscript for the printer is taught in connection with the written work. Essays are required once a fortnight, mostly reproductions, illustrating the laws of description and narration. Longfellow's Tales of a Wayside Inn, furnishes matter for reproduction and study in versification.

Fresh, II, 5.

RHETORICAL ARGUMENT. Instead of more advanced rhetoric, the rules of argument are studied; and to illustrate and enforce these, some masterpieces are critically examined. The speeches in . . P. Baker's Specimens of Argumentation furnish

suitable material. Frequent oral and written exercises make the work entirely practical; debates, written and oral, are had on questions of general interest. Each student presents three written exercises.

Soph. I, II, 2.

LITERATURE. The first work in literature follows the elementary rhetoric. It is a critical study of short, complete classics—essays, poems of various kinds, speeches, sketches and stories. Enough of each author and his times is told in familiar lectures to awaken interest, and show the occasion of the production. In this work constant reference is made to rhetorical principles, and the style of different authors is carefully compared, and both style and form are studied with reference to the thought and sentiment. The following texts are read:

Shakespeare's Merchant of Venice; Bacon's Essays—Selections; Milton's L'Allegro, Il Penseroso, Hymn, and Lycidas; Addison's Sir Roger De Coverly Papers; Pope's Rape of the Lock; Gray's Elegy in a Country Churchyard; Goldsmith's Deserted Village, and Traveller; Burns's Cottar's Saturday Night, and some other poems; Wordsworth's Ode on Immortality, and narratives from The Excursion; Irving's Sketchbook; Tennyson's Ulysses, Locksley Hall, Enoch Arden; Dickens's Christmas Carols, and selections from Emerson, Lowell, Holmes, Longfellow and Hawthorne.

Fresh. III, 5.

LITERATURE. The Second Course is given to a historical survey of literature, from Chaucer to the present time. Sufficient attention is given to the leading authors of the different periods to make evident the characteristics of their thought and style. The English drama receives special attention, and one day each week is given to reading Shakespeare. Much of the time is given to the critical reading of such texts as supplement, but not duplicate the first and third courses.

Jun. I, 3. All courses.

LITERATURE ADVANCED. The last term of the Senior year is given to the study of masterpieces. All the important forms of literature are laid under contribution—the drama, the epic, the lyric, the novel, the essay biographical and critical, the oration and history. One week is given to each piece selected. The work of the classroom is largely a report of students, either oral or written, on what they have done by themselves.



Section of English Library.

The following course, or its equivalent—texts changing somewhat from year to year—is offered:

Shakespeare, two great tragedies, Hamlet, Macbeth, Lear, Othello; Webster, Reply to Hayne; Burke, Conciliation With American Colonies; Macaulay, Essays on Milton and Addison; Milton, Paradise Lost, I and II, Samson Agonistes; Carlyle, Essays on Burns, Hero as Prophet; Tennyson, Princess, or selected poems; Motley, Peter the Great; George Eliot, Silas Marner; Wordsworth, selected poems, Ed. by M. Arnold.

Sen. Ag. D. A. and Com. III, 5.

GERMAN.

Professor MacEwan.

This is the only foreign language taught in the institution, and is in all the courses, three hours a week, during the Junior and Senior years. The Germans are now the leaders in agricultural science. The advanced student of agriculture must be able to read the literature on his subject coming from the German

press. Moreover a knowledge of German is deemed essential to a liberal education. These are the reasons for the appearance of this language in these courses. Oral and written exercises are accompanied by conversation, making more familiar the vocabulary and accustoming the ear as well as the eye to the words. In the time allotted only the framework of the language can be mastered; but enough is given to enable the student to prosecute independent study and consult German books.

After completing the Joynes-Meissner Grammar and Reading book, students are given such scientific reading material as will best equip them for using works of reference, and the publications of scientific institutions and societies; and such selections from classic German literature as are adapted to awaken an interest and stimulate a further reading. Tell, Nathan The Wise, Egmont, Hermann and Dorethea, Reisebilder, Ekkeharl, Peter Schlemihl, Das Kalte Herz.

Jun. and Soph. I, II, III, 3.

HISTORY.

Mrs. Eddy.

THE UNITED STATES. A course of lectures and recitations based on Fiske's History of the United States.

Sub-Fresh. II, III, 4.

ANCIENT HISTORY. Eastern nations and Greece; recitations from Myer's Ancient history; the rise and development of institutions.

Fresh. I, 2.

ROMAN HISTORY. The development of the Roman power and its expression in the civil law; political and general history of the Romans.

Fresh. II, 2.

MEDIAEVAL HISTORY. The overthrow of the Roman empire and the formation of modern nations. History of the middle ages.

Fresh. III, 2.

MODERN HISTORY. The history of England and the growth of the English constitution, are the chief topics, with some reference to the philosophy of history.

Soph. I, 3.

HORTICULTURE AND ENTOMOLOGY.

Professor Richman.

FRUITS AND VEGETABLES. Lectures and field work. Selection and preparation of the soil, methods of propagation, including seeding, grafting by the various methods, budding, layering, etc.; the pruning and care of orchards, picking, packing, marketing, and preservation of fruits.

Jun. Ag. D. A, I, 2.

THE PROPAGATING HOUSE. One afternoon of each week is given to root grafting and other work in the propagating house. Students in the Agricultural course take this work.

Jun. Ag. D. A, II, 2.



Interior of Green House.

FORESTRY. Propagation and care of the forest trees best adapted to this region. The grounds of the Horticultural Department contain a large number of the most promising kinds of forest and ornamental trees, which are studied as part of the field work of the department. Special attention is given to the effect of forests on the conservation of moisture, and the effect of the latter on the agriculture of the country.

FLORICULTURE. Instruction and practice in the care of house plants and flower gardening.

Jun. Ag. D. A, III, 2.

ENTOMOLOGY. Classes and life history of insects, especially those injurious to vegetation. Methods of exterminating destructive species. Lectures, with Packard's Entomology.

Sen. Ag. II, 2.

MATHEMATICS.

ALGEBRA. A thorough drill in the elements of Algebra, with special attention to fractions, factoring, simultaneous equations, involution and evolution, and radical expressions.

Fresh. II, III, 5. Langton.

PLANE GEOMETRY. Oral and written recitations in the elements of plane geometry. Required of Freshmen.

Fresh. I. 5. Styer.



Scale Room. Sets of balances for both ordinary and fine quantitative work in analyses are used by the students.

HIGHER ALGEBRA. Quadratic equations; simple indeterminate equations, inequalities, theory of exponents; logarithms; ratio and variation; series and the binomial and exponential theorems.

Soph. 1, 2. Styer.

SOLID GEOMETRY. Recitations on the relation of lines and planes in space, area of surfaces; volume of solids; and the solution of practical problems.

Soph. I, 3. Styer.

TRIGONOMETRY. The use of logarithms in the solution of right and oblique triangles, and the deduction and use of trigonometric formulae.

Soph. II, 5, except D. A. Styer.

SURVEYING. Eleven weeks, two recitations and four hours field practice a week; the solution of practical problems; the use of the compass and transit in the measurement of distance by triangulation and in land surveying, and the use of the level in establishing grades.

Soph. III, 5, except D. A. Styer.

DESCRIPTIVE GEOMETRY. The representation of and the solution of problems relating to geometrical magnitudes in space.

Jun. Civ. and M. E. I, II, 2, Jensen.

CALCULUS. General survey of the differential calculus, the solution of higher plane curves, and the ordinary methods of integration, following Osborne's text.

Jun. Civ. E. and M. E. I, II, III, 5, 2, 5, Jensen.

ANALYTICAL GEOMETRY. The reference of points and lines to co-ordinate axes and the deduction of equations of the straight line and curves of the conic sections.

Jun. C. E. and M. E. II, 5, Jensen.

DESCRIPTIVE GEOMETRY. Orthographic projections and development; projections of plane and solid figures; curved surfaces and tangent planes; shades and shadows; construction of maps; solution of problems relating to geometrical magnitudes.

Jun. Civ. E. and M. E. I, II, 2, Jensen.

Other courses in applied mathematics are described under Civil and Mechanical Engineering.

MECHANICAL ENGINEERING.

ELEMENTARY MECHANISM. Study of the underlying principles of all mechanical construction, link work; toothed gearing, cams, belting, automatic feeds, clock-trains, etc.

Jun. Civ. E. and M. E. III, 4, Jensen.

METALLURGY. Consideration of the principal ores of iron; the processes of their reduction; and the characteristics of the various classes of iron and steel.

Jun. Civ. and M. E. III, 5, Fortier.



Machine Shop. The machinery includes a 2 x 2 x 6 feet iron planer, two 14-inch engine lathes, with attachments, a 20 inch drill press, emery grinder, a universal milling machine, etc.

STEAM ENGINE. A study of the various types of steam engine; the economic advantage of the compound and condensing engines; valves and valve gear; Zenner's diagram; use of the indicator; effect of reciprocating parts, and inertia of fly wheel.

Sen. Civ. and M. E. I, 5, Jensen.

POWER, MEASUREMENT AND TRANSMISSION. Measurements of power by means of the Prony break, and other forms of dynamometers; comparative efficiency of steam, gas, and electric motors; power absorbed by rope, leather belting, shafting, etc.

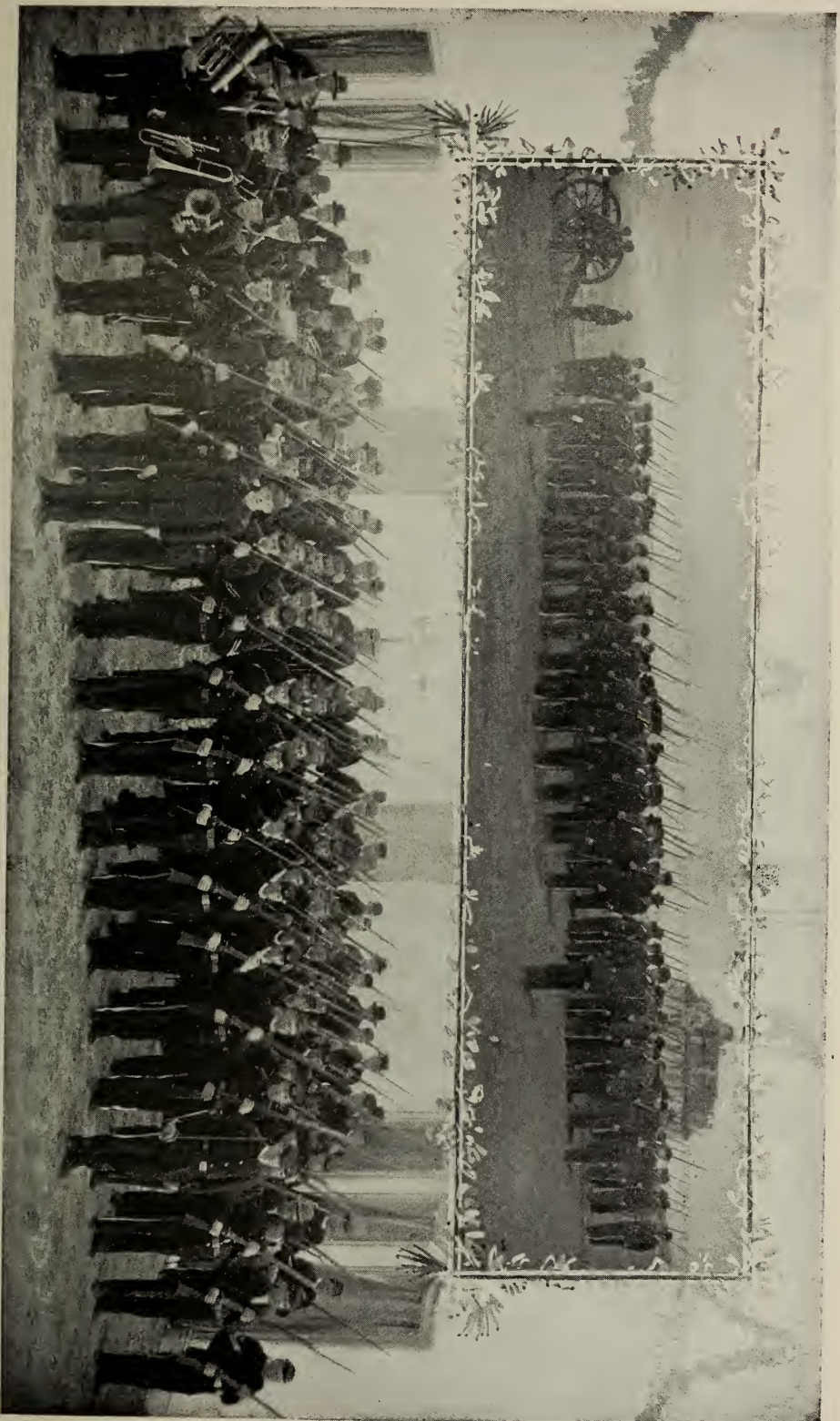
Sen. Civ. E. and M. E. II, 5, Jensen.

MACHINE DESIGN. The use of formulae in the designing of machines or parts of machines.

Sen. Civ. E. and M. E. II, 5, III, 2, Mayo.

STEAM BOILERS. A study of the construction, care, and management of steam boilers, with history of development of the steam engine.

Sen. Civ. and M. E. III, 5, Jensen.



Officers of Battalion.

Adjutant W. F. Culmer,

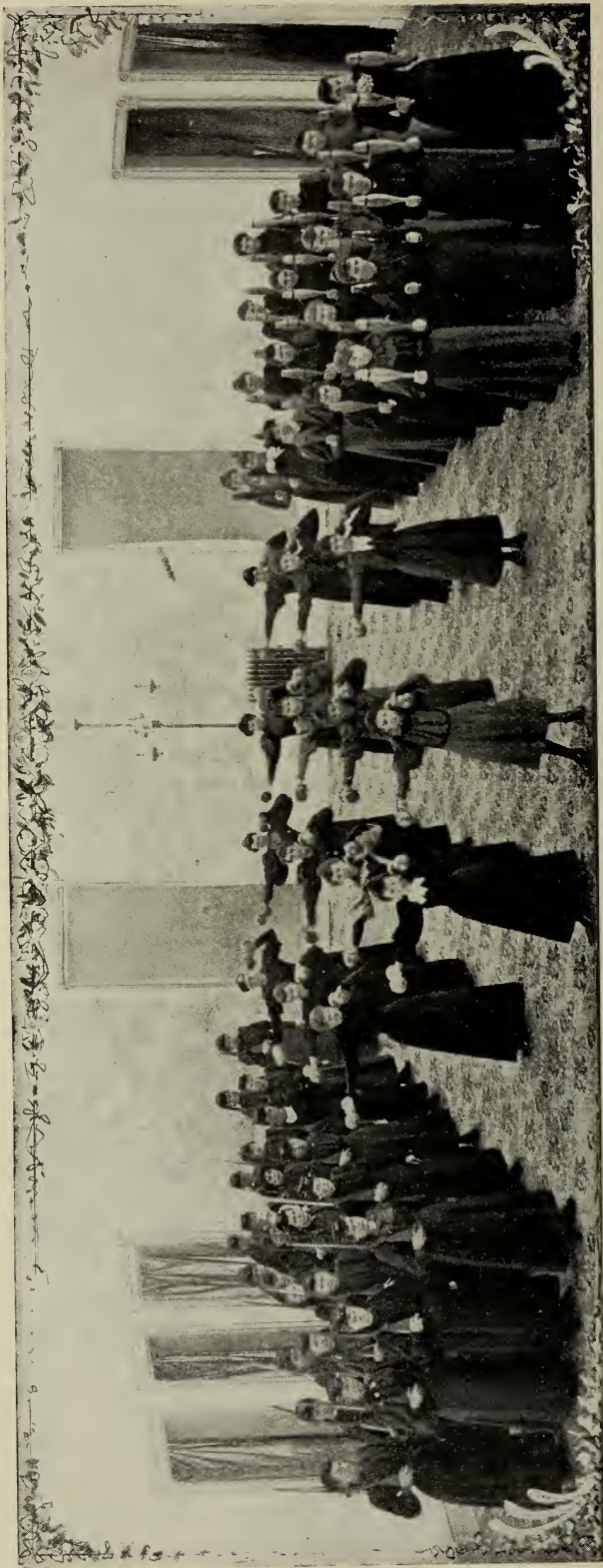
Captain W. W. McLaughlin, First Lieutenant C. W. Berryman, First Sergeant J. F. Mendenhall, Sergeants C. A. Jensen, John Stewart

Corporals H. Harris, J. C. McGarry, E. Eames, E. J. Merrill,

Captain W. M. Boydel, First Lieutenant R. A. Deal, First Sergeant A. McLean, Sergeants F. B. Ellsworth, J. Ellason, J. W. Funk,

Corporals L. Wright, F. Atkinson, L. H. Carver.

COMPANY A.
COMPANY B.



Physical Culture.

LADIES' MILITARY ORGANIZATION Captain Lucy Merrill. First Lieutenant Winnie Smith. Second Lieutenant Libbie Rich. First Sergeant Minnie Smith. Second Sergeant Agnes P. Atkin. Third Sergeant Phoebe Eliason. First Corporal Lettie Peterson. Second Corporal Jennie Hubbard. Third Corporal Maud Smith. Fourth Corporal Nora Pugmire.

Physical Exercises for Young Women are Systematically Conducted, in the Department of Physical Culture.

DRAWING AND EXPERIMENTAL WORK. Testing experiments and the solution in the drawing room of practical engineering problems.

Sen. Civ. and M. E. I, 10, Fortier.

MILITARY SCIENCE AND TACTICS.

Lieut. Styer.

This course is in charge of an officer of the United States Army, detailed by the Secretary of War. The Government furnishes Springfield cadet rifles and equipment for infantry drill and two rifled-cannon for artillery instruction. A uniform of dark blue is worn by the cadets, the cost of which, including cap, is about fifteen dollars.

The attention of students intending to enter College is called to the fact that this uniform has been found more serviceable than a suit of civilian clothes of the same price, and they are requested to make arrangements so as to be able to order this uniform when they enter. On all occasions of drill, or when students are receiving any other military instruction, they are required to appear in uniform as prescribed by the College.

INFANTRY. This includes all the movements described in the drill regulations of the U. S. Army from gymnastic instruction in the setting up exercises, the school of the soldier and bayonet exercise, to the drill by company and battalion; exercise in estimating distances by sign and also by sound; target practice with rifle, for which the government makes an annual allowance of ammunition. Instruction in signalling with flag and in military telegraphy.

ARTILLERY. This embraces drill in the manual of the piece, and target practice when practicable.

THEORETICAL INSTRUCTION. During the winter months when outdoor drills are necessarily suspended, instruction is given by means of recitation from the drill regulations and by lectures on the elements of military science. Daily from 11:40 to 12:10 a. m. Required of all students except Juniors and Seniors.

PHYSICAL CULTURE.

PHYSICAL CULTURE. Systematic exercises in free gymnastics, and in light gymnastics with Indian clubs, dumb-bells, swings, and weight machines.

Fresh. and Soph. D. A. I, II, III, 3, Kenyon.

LADIES' MILITARY DRILL. Regular infantry tactics with light rifles.

Fresh. and Soph. I, II, III, 2, Kenyon.



The Gymnasium is 70 feet square, and is equipped with weight machines, swings, ladders, bowling alley, Indian clubs, dumb-bells, and other appliances.

MECHANIC ARTS.

I. FRESHMAN YEAR.

TECHNICAL INSTRUCTION. (a) Lectures and recitations on the forms and use of wood-working tools.

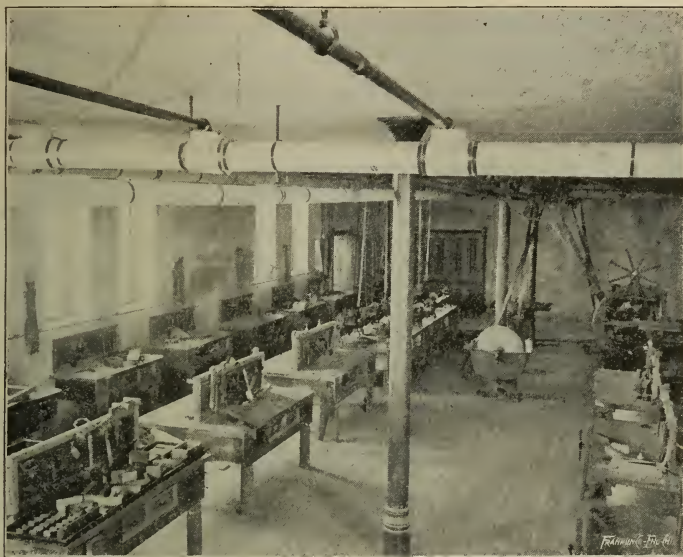
(b) Lectures and recitations on the growth, felling and seasoning of timber.

(c) Lectures on the construction and operation of wood-working machines.

Fresh. I, 2, Mayo.

MECHANICAL DRAWING. In the first year is taught the use of drawing instruments in the solution of geometric problems and the principles of projections. The student is also required to sketch parts of machines, take necessary measurements and prepare working drawings, making the tracings and blue prints.

Jun. Civ. E. and M. E. II, III, 5, Mayo.



Wood Shop. Each student has a bench and a complete set of carpenters tools of the most approved make. Power saws and planing machines are in the same room. Nearby are commodious store-rooms.

FRESHMAN SHOP WORK.

(a) BENCH WORK IN WOOD Includes exercises in planing, sawing, chiseling, rabbiting, plowing, splicing, mortising, tenoning, dove-tailing, framing, paneling, and general use of carpenters tools.

(b) WOOD TURNING Covers all the principles of straight turning, face plane and chuck work.

Fresh. I. 10, Mayo.

(c) IRON FORGING Embraces the following principles; drawing, bending, twisting, cutting, punching, upsetting, welding, and the use of flatters, fullers, swages, etc. These principles are applied in the making of a pair of tongs for use in shop. Other articles are made, such as andirons, ornamental gates, etc., if time will permit.

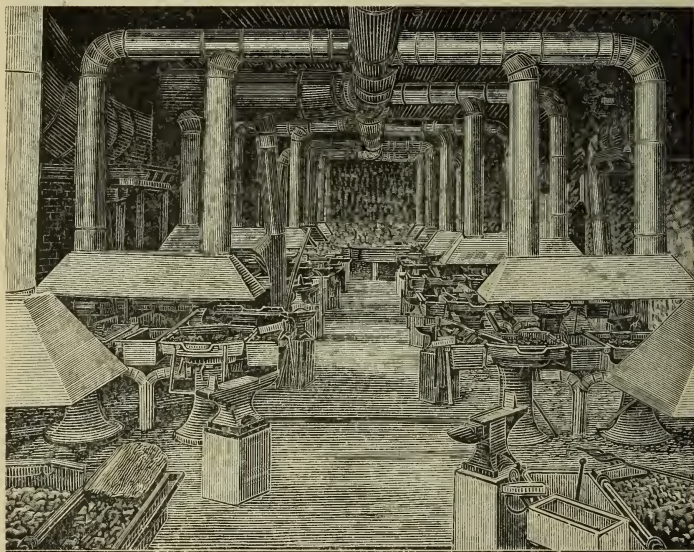
(d) **STEEL FORGING** Embraces the forging and tempering of punches, cold chisels, drills, lathe and planer tools, springs, etc. The welding of steel to iron and iron to steel, annealing, case hardening, and coloring are also taught.

Fresh. II. 10, Mayo.

(e) **CABINET MAKING** Is the actual construction of articles of furniture, this being a practical application of the principles learned in bench and lathe work, with some little wood-carving added.

(f) **WOOD-CARVING** Is given only to special students who have the necessary preparation.

Fresh. III. 6, Mayo.



Forge Room. Twenty-four power-blast forges, with anvils, vises, and all necessary tools, afford practice in the usual operations of iron and steel work at the forge.

II. JUNIOR YEAR.

TECHNICAL INSTRUCTION.

(a) Theory of Pattern Making.

Thirty-two lectures

(b) Metal Working Appliances.

Twenty lectures.

Mechanical Drawing.

Thirty-six weeks, ten hours per

week.

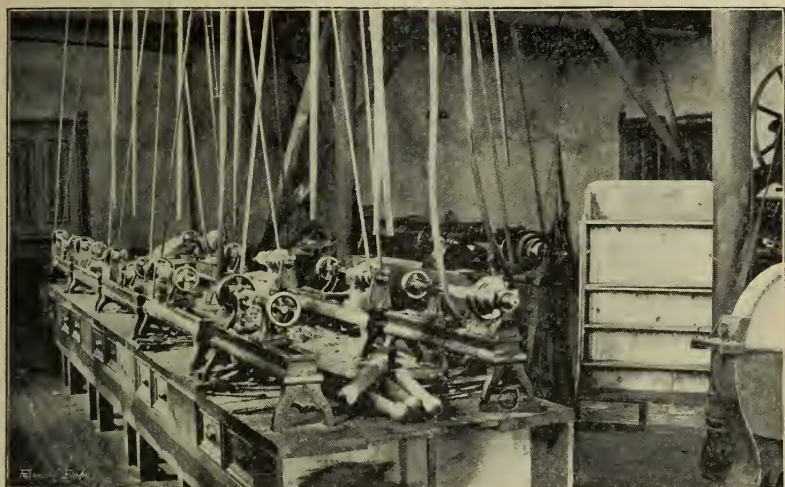
Solution of problems in descriptive Geometry, and a few lessons in Isometric Perspective.

Jun. M. E. I, II, III, 10, Mayo.

ADVANCED SHOPWORK.

(a) **PATTERN MAKING**, Embraces a number of exercises in the construction of simple and built up patterns and core boxes.

(b) **WISE WORK** In iron embraces chipping, filing, scraping, thread cutting, hand polishing, cutting of kep seats, riveting, brazing and soldering.



**Lathes and
Wood Turning.**

The lathes are adapted to first class work, and each student turns out a complete set of wood turnings.

(c) **MACHINE WORK**, Embracing straight, paper and excentric turning, thread cutting, face plate and chuck work, taper boring, use of boring bar, and milling on the engine lathe, surfacing, cutting of V, dove-tail and T grooves, and kep seating on planer, plain milling, grooving of taps, reamers, etc., gear cutting and grooving of twist drills on milling machines, drilling and boring in drill press, grinding and buffing on emery wheel.

Jun. M. E. I, II, III, 10, Mayo.

PHILOSOPHY.

PSYCHOLOGY. A study of the principal facts and theories of the science of mind, as an introduction to philosophy. The bearing of the subject on education is emphasized; and the student is made familiar with the great names in philosophy, and with the main doctrines of the different schools.

Jun. or Sen. I, 3, Paul.

Elective with others prepared to pursue the study.

LOGIC. The science of reasoning is considered by text-book lessons from Hills-Jevons Logic. The chapters on Forms, Propositions, Syllogisms, Induction, Deduction, and Fallacies are studied and recited.

Jun. or Sen. II, 3, Styer.

ETHICS. A series of lectures and text-book lessons, furnish the student with themes and materials for original essays and orations. This gives a grasp of the fundamentals of ethical doctrine, and affords practice in speaking and writing. Twice a week during the spring term

Jun. or Sen. III, 2, Caine.

AESTHETICS. A series of lessons on the science of taste and the theories of the beautiful in art and nature. Reference to the history and development of the fine arts is frequently made, and the subject is elucidated by concrete examples and suggestive illustrations. Three times a week throughout the fall term.

Sen. D. A. I, 3, Cotey.

HISTORY OF THE FINE ARTS. Ten lectures during the winter term, in connection with advanced drawing. Elective to Seniors in Domestic Arts.

PHYSICS.

Professor Jensen.

ELEMENTARY PHYSICS. This is an introductory science course, in which the important laws of Natural Philosophy are stated and discussed. The current hypothesis of the constitution of matter is made the subject of especial study and all problems are referred back to it for their final explanations. Illustrations of the modern methods of scientific reasoning are given, and numerous practical problems bearing on the subject in hand are solved in and out of the class room.

Fresh, I, II, 3.

PHYSICAL MEASUREMENTS. Sound, Heat and Light. Essentially a course in exact quantitative measurements. Each student illustrates and verifies the laws of Sound, Heat, and Light by mean of a series of experiments in the physical laboratory. The work is performed with the utmost care; sources of error are eliminated as far as possible, and the error of each experiment is determined. As a training in accuracy of work and judgment the performance of such experiments stands foremost.

Soph. I, 4.



**The Physical
Lecture Room.**

has seats for fifty students and the laboratory can be arranged to accommodate about the same number.

PHYSICAL MEASUREMENTS. Electricity and Magnetism. A continuation of course 2, dealing with the laws of electricity and magnetism; the practical methods of measuring strengths of currents resistances and voltages, and the construction and handling of electrical appliances. Here, as in course 2, the thoroughly equipped laboratory furnishes the students with exceptional advantages.

Soph. II, 4.

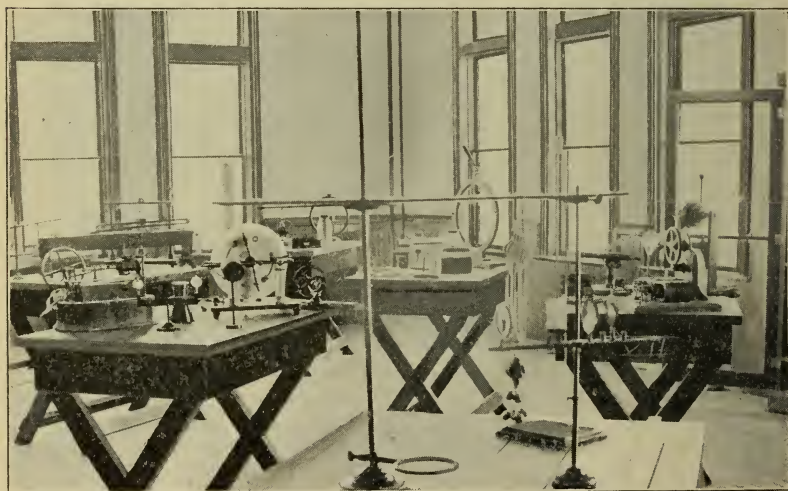
ELEMENTARY MECHANICS. Study of the laws of force and motion, solution of problems in the construction of buildings; and in the use of machines; with laboratory demonstrations.

Soph. III, 7.

ADVANCED PHYSICS. Heat, steam engine, steam boilers, electricity, elements of mechanism and other courses in higher and applied physics are described under Civil and Mechanical Engineering.

METEOROLOGY. This includes an elementary study of air pressure, humidity, temperature, rainfall, evaporation, wind velocity, theory of storms, methods of forecasting, and a general study of the United States Weather service, with special reference to the relation of climate to health and to agriculture. The reading of the weather instruments in use at the College is made a part of the work.

III, 2. Jun. and Sen. Elective, Dryden.



Physical Laboratory. The laboratory exercises are so planned as to require quantitative results even in elementary work. In advanced courses, the student is expected to derive his own constants and plan his own work.

POLITICAL SCIENCE AND SOCIOLOGY.

President Paul.

CIVIL GOVERNMENT AND CONSTITUTIONAL LAW.

A

study of the township, county, municipal, state, and national government, showing the evolution of the higher from the lower forms, with especial attention to the origin of each form. The present meaning and force of the national constitution is also considered. Fiske's Civil Government and Cooley's Constitutional Law.

Soph. II and III, 2, Eddy.



President's Office.

SOCIOLOGY. The state as an organism, crime and its causes, the nationalization of land, and other questions are investigated mainly by assigned readings in the library. Elective to students who have completed history, civil government, and political economy.

Sen. Elective I, 2, Paul.

POLITICAL ECONOMY. Three recitations per week from Laveleye's Political Economy. supplemented by illustrative statistics, explanations, and assigned readings. Original research and discussion are encouraged so as to give reality and interest to the discussion of the economic problems that now engage the highest thought of our country.

Soph. II, 3, Paul.

ADVANCED POLITICAL ECONOMY. Problems of the day—taxation, railways, co-operation, coinage and money, pauperism, etc.—treated by lectures and assigned readings.

Sen. Elective, II, 2, Paul.

COMMERCIAL ECONOMICS. See under Commercial Branches.

SEWING.

Miss Bowen.

The object of this branch of training, besides the general advantages derived from industrial education, is to give a practical training in the sewing which every household requires. Neatness of work is insisted upon. The student provides her own material and makes her own dresses.

PLAIN SEWING. Practice is given first in the various hand stitches used in muslin and woolen goods; overhanding, running, hemming, hem-stitching, overcasting, felling, gathering and stroking gather, buttonholes, gusset, patching and darning, French hem on damask, etc.

Sub. Fresh, I, II, III, 3.

DRESSMAKING. At least two muslin garments are made. A gown is cut out, basted and entirely made by the student.

Fresh. D. A. I, 2, II, III, 5.

DESIGNING, CUTTING AND FITTING. This work consists of talks on grace in design of costume and harmony of color. Special attention is given to hygienic modes of dress. The student is taught to draw the costumes which she designs. She also learns to draft patterns from measurements. Further practice is given in cutting and fitting.

Jun. D. A. II, 5.

FANCY WORK. This course includes Kensington embroidery, Roman cut-work, Spanish laid-work, drawn work, etc.

Sen. D. A. II, 5.

MILLINERY. This course comprises instruction in frame-making, facings, shirring, making bows, lining, wiring, etc. General instruction is given in making tasteful hats and bonnets.

Jun. D. A. III, 2.

ANATOMY AND PHYSIOLOGY.

ANATOMY AND PHYSIOLOGY. Lectures and recitations on human and comparative anatomy illustrated by models, anatomical preparations, diagrams, and dissections.

Jun. Ag. D. A. and Com. II, 4, III, 3, Brewer.

VETERINARY SCIENCE. Anatomy, physiology and hygiene of farm animals; zymotic, parasitic, dietetic, and constitutional diseases of domestic animals; prevention of animal plagues by legislative and individual action; general diseases of different systems of organs in domestic animals, together with clinical demonstrations.

Sen. Ag. I, II, 8, III, 6. Fischer.



Dissections of animals are made by students in the veterinary laboratory, located a short distance from the main building. The cut shows the class-room in human and comparative anatomy.

LABORATORY WORK. The lecture course is supplemented by laboratory work both in the winter (2) and spring (6); here the student devotes his time to dissections on small animals; the study of osteology; together with a consideration of the elements of histology.

Jun. Ag. & D. A. & El. Sc. Brewer.

SHORT COURSES.

Three short courses are offered, for the encouragement of students who may not be able to continue longer than two years. These two-year courses have been so arranged that the student may, after graduation, enter the third year of the regular courses, under certain conditions.

SHORT COURSE IN AGRICULTURE.

No student under seventeen years of age is admitted to this course, which has been arranged to meet the needs of persons of immature years who do not take a regular College course. The mathematics and the language study of the first year is either of the Sub-Freshman or of the Freshman grade, according to the advancement of the student.

FIRST YEAR.

FIRST TERM.		SECOND TERM.		THIRD TERM.	
Agriculture.	3	Agriculture.	3	Agriculture.	3
Grammar.	4	Grammar.	5	Botany.	3
Arithmetic.	4	Arithmetic.	5	Physiology.	5
U. S. History.	4	Physical Geography.		Geology.	5
Afternoon Work.					
FIRST TERM.		THIRD TERM.		SECOND TERM.	
Free-Hand Drawing.	2	Shopwork in Iron.	4	Agriculture.	2
Shopwork in Wood.	4	Mineralogy and Lithology.	6	Shopwork in Wood.	4
Agriculture.	2			Geology.	2

SECOND YEAR.

FIRST TERM.		SECOND TERM.		THIRD TERM.	
Dairying.	3	Agriculture.	3	Agriculture.	3
General and Agricultural Chemistry.	5	General and Agricultural Chemistry.	5	Literature.	5
Economic Botany.	3	Veterinary Science.	3	Horticulture.	2
Physics.	3	Entomology.	3	Composition.	5
Afternoon Work.					
Cheese Making		Agriculture.	2	Agriculture.	4
(Mondays.)		Horticulture.	2	Dairying or Shop Work.	6
Butter Making.	2	Chemical Analysis.	6		
Chemical Experiments.	6				

SHORT COURSE IN DOMESTIC ARTS.

Upon completion of the Freshman and the Sophomore year of the regular course in Domestic Arts (page 22) the student is entitled to a certificate of graduation in the short course.

SHORT COMMERCIAL COURSE.

FIRST YEAR.		
FIRST TERM.	SECOND TERM.	THIRD TERM.
English Grammar. 5	Rhetoric. 5	Literature. 5.
Plane Geometry. 5	Algebra. 5	Algebra. 5
Military Drill. 2	Military Drill. 3	Military Drill. 3
Ancient History. 3	Elementary Physics. 2	Science of Book-Keeping. 3
Elementary Physics. 3	Ancient History. 2	Mediaeval History. 2
Afternoon Work.		
Typewriting. 5	Typewriting. 5	Typewriting. 5
SECOND YEAR.		
FIRST TERM.	SECOND TERM.	THIRD TERM.
Stenography. 4	Stenography. 4	Stenography. 4
Solid Geometry. 3	Commercial Law. 5	Commercial Law. 5
Rhetoric. 2	Political Economy. 3	Civil Government and Constitutional Law. 2
Commercial Geography 3	Rhetoric. 2	
	Civil Government. 2	

Afternoon Work.

Practical work in bookkeeping, banking, freighting, insurance, real estate, etc.

PREPARATORY DEPARTMENT.

Many of the settlements of Utah have barely passed their pioneer days. From such sections no great advance in education could be expected, and in some the schools are quite primitive. As a consequence many young men and women who have had to work hard with their parents in the varied operations of home making, find themselves without the educational start which their integrity merits. They have given their time to the material progress of the Territory, and now feel that they are entitled to a share in its intellectual advancement. In some of the thinly populated districts, schools are not regularly kept, and those that are do not provide instruction generally adapted to the age and wants of the class of whom we speak.

It therefore seems obvious, that until these young people pass the time they may devote to school, justice demands some provision for them in our higher educational institutions. The College maintains a department for such students and offers them the following studies:

SUB-FRESHMAN YEAR.

FIRST TERM.	SECOND TERM.	THIRD TERM.
Grammar. 4	Grammar. 4	Composition. 4
Arithmetic. 4	Arithmetic. 4	Arithmetic. 4
Physical Geography 4	U. S. History. 4	U. S. History. 4
Political Geography. 4	Elocution. 3	Elocution. 3
Elocution. 3	Drawing. 2	Drawing. 2
Drawing. 2	Shopwork. 3	Shopwork. 3
Shopwork. 3	Or Sewing. 3	Or Sewing. 3
Or Sewing. 3		

This preparation fits students for the several courses of College study. It will be seen that the elements of certain industrial exercises have been included. English classics, penmanship and spelling are also offered in this grade.

WINTER COURSE FOR FARMERS.

Beginning in January, a course of special lectures in agriculture is given for the benefit of any farmer that may wish to attend. The course includes agriculture, horticulture, entomology, botany, chemistry, veterinary science, and dairying, treated almost wholly from the practical side, and continues one term, till the end of March.

A special circular describing this course will be mailed upon application.

WINTER COURSE FOR WOMEN.

A special course in sewing, household management, cooking and such literary or scientific studies in addition thereto as the student is prepared to pursue, is offered to women during the winter term.

Special circulars describing this course are issued.



Samples of Woodwork.

SUMMARY OF WORK AND PROGRAMME OF CLASS RECITATIONS.

FIRST TERM.

FIRST HOUR.

Times.	Class.	Teacher.	Taken By.
2	Botany.	Fischer.	Soph.
3	Econ. Bot.	Fischer.	Sen. Ag.
3	Hist. of Ag.	Mills.	Jun. Ag.
5	Hist. of Com.	Shepard.	S. M.
5	Pol. Geog.	Shepard	Sen. Com.
5	Grammar.	MacEwan.	Fresh.
5	Plane Geom.	Styer.	Fresh.
5	Higher Sur.	Fortier.	Sen. C. E.
1	Shopwork.	Mayo.	Sub. F.
5	Steam En.	Jensen.	Sen. M. E.
5	Sewing.	Bowen.	D. A.
5	Com. Arith.	Caine.	Jun. Com.
4	Arithmetic.	Langton.	Sub. Fr.

SECOND HOUR.

3	Psychology.	Paul.	J. A. & D. A.
4	Pol. Geog.	Eddy.	Sub-F.
4	Stenography.	Dryden.	Com.
5	Grammar.	MacEwan.	Fresh.
3	English Classics.	Kenyon.	Prep.
5	Plane Geom.	Styer.	Fresh.
3	Irr. Eng.	Fortier.	Sen. C. E.
2	Munic. Eng.	Fortier.	Sen. C. E.
3	Dairying.	Linfield.	Sen. Ag.
1	Shopwork.	Mayo.	S. F.
3	Chemistry.	Widtsoe.	Jun. Ag.
5	Calculus.	Jensen.	J. C. E. & M. E.
4	Grammar.	Caine.	S. F.

Laboratory Work (Afternoons.)

6	Bacteriology.	Brewer.	Jun.
6	Biology.	Brewer.	Sen.
10	Field, Eng.		
	& Ex. Work.	Fortier.	Sen.
10	Dairy Prac.	Linfield.	Jun.
4	Hand. Stock.	Linfield.	Jun.
10	Mach. Work		
	in Iron &		

FIRST HOUR.

4	Com. Law.	Shepard.	Sen.
2	Civil Govern.	Eddy.	Soph.
5	Rhetoric.	MacEwan.	Fresh.
4	Anat. & Phys.	Brewer.	Jun.
5	Algebra.	Lang.	Fresh.
5	Hydraulics.	Fortier.	Jun.
1	Shopwork.	Mayo.	S. F.
5	Org. Chem.	Widtsoe.	Special.
2	Mach. Design.	Jensen.	Sen.
3	Pow., M't., etc.	Jensen.	Sen.
3	Agriculture.	Fischer.	
5	Grammar.	Caine.	Prep.

SECOND HOUR.

5	Special Course.	Richman.	Special.
5	Spec. Course.	Richman.	Special.
3	Farm Irrig.	Mills.	Jun.
4	Bookkeeping.	Shepard.	Sen.
5	Geography.	Eddy.	Prep.
4	Stenography.	Dryden.	Sen.
5	Rhetoric.	MacEwan.	Fresh.
2	Zoology.	Brewer.	Soph.
5	Algebra.	Langton.	Fresh.
2	Mun. Engl.	Fortier.	Sen.
3	Irr. Engl.	Fortier.	Sen.
1	Shopwork.	Mayo.	S. F.
3	Chemistry.	Widtsoe.	Soph.
2	Agr. Chem.	Widtsoe.	Jun.
5	Analyt. Geom.	Jensen.	Jun.
5	Spec. Course.	Fischer.	Special.
5	Sewing.	Bowen.	
5	Grammar.	Caine.	S. F.

THIRD HOUR.

Times.	Subject.	Teacher.	Taken By.
2	Sociology.	Paul.	Jun. Agr.
2	Horticult.	Richman.	Jun. Ag.
4	Com. Law.	Shepard.	S. Com.
3	History.	Eddy.	Sen.
2	Rhetoric.	MacEwan.	Soph.
3	German.	MacEwan.	Sen.
3	Biology.	Brewer.	Special.
5	Declamation.	Kenyon.	Fresh.
3	Solid Geom.	Styer.	Soph.
5	App. Mech.	Fortier.	
1	Shopwork.	Mayo.	Sub. F.
4	Household Man.	Cotey.	S. D. A.
3	Ele. Physics.	Jensen.	Fresh.
2	Desc. Geom.	Jensen.	J. M. E.
5	Grammar.	Caine.	Prep.
4	Phys. Geog.	Langton.	Sub. F.

FOURTH HOUR.

3	History.	Eddy.	Sen.
2	History.	Eddy.	Fresh.
3	Eng. Lit.	MacEwan.	Jun.
2	German.	MacEwan.	Sen.
3	Elocution.	Kenyon.	S. F.
	Declamations.	Kenyon.	Fresh.
2	Higher Algebra.	Styer.	Soph.
2	Surveying.	Fortier.	J. C. E.
2	Drawing.	Mayo.	S. F.
4	Vet Science.	Fischer.	Sen. Ag.
5	Arithmetic.	Langton.	Prep.
	Designing.	Mayo.	Jun.
6	Chemistry.	Widtsoe.	Soph.
4	Sound, Heat		
	& Light.	Jensen.	Soph.
2	Penmanship.	Hyde.	Fresh.
4	Vet. Science.	Fischer.	Sen.
10	Sewing.	Bowen.	Fresh.
10	Woodwork.	Mayo.	Fresh.

SECOND TERM.

THIRD HOUR.

3	Com. Econ.	Shepard.	Sen. Com.
2	History.	Eddy.	Fresh.
3	German.	MacEwan.	Jun.
2	Zoology.	Brewer.	Jun.
3	Elocution.	Kenyon.	S. F.
5	Trigonometry.	Styer.	Soph.
5	Graphical Stat.	Fortier.	S. E. C.
2	Spec. Course.	Linfield.	Special.
2	Drawing.	Mayo.	S. F.
4	Cooking.	Cotey.	Soph.
3	Physics.	Jensen.	Jun.
2	Calculus.	Jensen.	Jun.
4	Vet. Science.	Fischer.	Sen. Ag.
5	Arithmetic.	Langton.	Prep.

FOURTH HOUR.

4	U. S. History.	Eddy.	S. F.
2	Rhetoric.	MacEwan.	Soph.
3	German.	MacEwan.	Sen.
	Declamations.	Kenyon.	Fresh.
1	Shopwork.	Mayo.	S. F.
3	Mech. Draw.	Mayo.	Jun.
2	Desc. Geom.	Jensen.	Jun.
3	Logic.	Styer.	Jun.
3	Eng. Classics.	Styer.	Prep.
4	Arithmetic.	Langton.	S. F.

Laboratory Work (Afternoons.)

Times.	Subject.	Teacher.	Taken by
10	Bookkeeping.	Shepard.	Jun.
4	Anatomy.	Brewer.	Jun.
6	Biology.	Brewer.	Sen.
10	Drawing & Designing.	Mayo.	Jun.
10	Drawing.	Mayo.	Jun. & Sen.
6	Mineralogy.	Widtsoe.	Jun.
6	Chemistry.	Widtsoe.	Soph.
4	Cooking.	Cotey.	Soph. & Jun.
4	Vet. Science.	Fischer.	Sen.

Times.	Subject.	Teacher.	Taken By.
2	Agri. Practice.	Mills.	Jun.
4	Elect. & Mag.	Jensen.	Sen.
10	Special Course.	Linfield.	Special.
6	Chemistry.	Widtsoe.	Soph.
4	Electricity and Magnetism.	Jensen.	Soph.
2	Penmanship.	Hyde.	Fresh.
10	Sewing.	Bowen.	Fresh.
10	Forgework.	Mayo.	Fresh.

THIRD TERM.

FIRST HOUR.

5	Ele. Mech.	Jensen.	Soph.
4	Com. Law.	Shepard.	Sen.
4	Hist. Reading.	Eddy.	Prep.
5	Literature.	MacEwan.	Fresh.
3	Biology.	Brewer.	Sen.
5	Algebra.	Langton.	Fresh.
5	Mat. & Engi.	Fortier.	Jun.
1	Shopwork.	Mayo.	S. F.
4	Sc. of Nutrition.	Cotey.	Soph.
5	Sewing.	Bowen.	
5	Geology.	Caine.	J. & S.
4	Arithmetic.	Langton.	S. F.
3	Sanitary Sci.	Brewer.	Soph.

SECOND HOUR.

4	Stenography.	Dryden.	Sen.
5	Literature.	MacEwan.	Fresh.
3	Physiology.	Brewer.	Jun.
5	Algebra.	Langton.	Fresh.
2	Horticulture.	Richman.	Jun.
5	Roads & Pa'm'ts.	Fortier.	Sen.
1	Shopwork.	Mayo.	S. F.
3	Chemistry.	Widtsoe.	Soph.
5	Calculus.	Jensen.	Jun.
2	Vet. Science.	Fischer.	Sen.
2	Millinery.	Bowen.	Jun.
4	Composition.	Caine.	S. F.
3	Eng. Classics.	Styer.	Prep.

THIRD HOUR.

2	Floriculture.	Richman.	Soph.
4	U. S. History.	Eddy.	S. F.
4	Typewriting.	Dryden.	Jun.
5	Literature.	MacEwan.	Sen.
2	San. Science.	Brewer.	Special.
	Declamations.	Kenyon.	S. F.
2	Surveying.	Styer.	Soph.
3	App. Elec.	Fortier.	
1	Shopwork.	Mayo.	S. F.
4	Dom. Hygiene.	Cotey.	Jun.
5	Ele'm'ts of Mech.	Jensen.	Jun.
3	Agriculture.	Fischer.	Jun.
5	Sewing.	Bowen.	
4	Grammar.	Caine.	Prep.
5	Penmanship.	Langton.	

FOURTH HOUR.

2	History.	Eddy.	Fresh.
2	Civil Gov.	Eddy.	Soph.
3	German.	MacEwan.	Sen.
3	German.	MacEwan.	Jun.
3	Elocution.	Kenyon.	S. F.
2	Mech. Draw.	Fortier.	Jun.
2	Drawing.	Mayo.	S. F.
1	Shopwork.	Mayo.	S. F.
5	Steam. Boil.	Jensen.	Sen.
3	Botany.	Fischer.	Fresh.
5	Sewing.	Bowen.	
2	Ethics.	Caine.	Jun.
4	Arithmetic.	Langton.	Sh. Com.
3	Sci. Book'g.	Shepard.	Com.

Laboratory Work (Afternoons.)

THIRD TERM.

2	Field Agri.	Mills.	Jun.
10	Bookkeeping.	Shepard.	Jun.
10	Surveying, etc.	Fortier.	Sen.
4	Hand. Stock.	Linfield.	Sen.
6	Chem.	Widtsoe.	Soph.
4	Cooking.	Cotey.	Jun.
6	Anatomy.	Brewer.	Jun.
6	Biology.	Brewer.	Jun.

4	Surveying.	Styer.	Soph.
2	Mach. Des.	Jensen.	Sen.
2	Geom. Draw.	Jensen.	Jun.
10	Sewing.	Bowen.	Fresh.
2	Geology.	Caine.	Jun.
5	Astronomy.	Langton.	Sen.
6	Shopwork.	Mayo.	Fresh.
4	Vet. Science.	Fischer.	Sen.

EXAMINATIONS.

Instructors keep a record of recitations, marked according to the decimal system. In making up final examination percentages, this is counted one-third, the mid-term examination one-third, and final examination for the term, one-third. But students who have been in a class only four-fifths, or less, of a term (or whose absences amount to one-fifth or more of the term) shall pass the whole subject upon examination. In all four year courses, an average of final marks, of not less than 75 per cent., with no mark less than 60 per cent., will be required for graduation. Any student falling below 60 per cent. for a month, may be dropped from the class.

GRADUATION.

The degree of Bachelor of Science is conferred upon completion of any of the four year courses. A certificate is granted for the completion of any short course.

COLLEGE CHARGES.

Tuition is free. An entrance fee of \$5 is charged for each year of the College course; for a single term \$2.50. The privileges of the library, museums, etc., are free to students. In the chemical laboratory, work shops and cooking rooms, students are charged for the cost of the materials actually used up by them in their exercises, the cost varying from \$2 to \$4 per year in each industrial or laboratory course.

Certificates of graduation in short course, \$2.50.

Bachelor of Science diploma, \$5.

CHEMISTRY.

(Omitted from page 33.)

Professor Widtsoe.

ELEMENTARY CHEMISTRY: A study of the important facts and fundamental theories of chemistry; the laws of chemical combination; the writing of reactions, and practice in solving stoichiometrical problems, together with the applications of chemistry in the arts and manufactures. Students taking this subject must also take course 2.

Soph. I, II, III, 3.

CONTRIBUTIONS TO THE MUSEUM.

We acknowledge with thanks substantial favors from the following contributors

Silver King Mining Company.....	Minerals and Ores.
Butterfield Mining Company.....	Minerals and Ores.
Joseph Dixon Crucible Company, Jersey City, N. J.....	Graphite Specimens and Graphite Preparation.....
Thomas Griffin.....	Prize Model of Steam Engine.
J. M. Macfarlane.....	Gold and Silver Minerals from Southern Utah.
J. H. Brown Marble Co.....	Specimen of Native Ornamental Marble.
Ezra Eames.....	Paleolithic Flints.
Jas. P. Lay.....	Copper Ores.
Julius Johnson.....	Salt Crystals from Nevada.
Wm. Calder.....	Specimens of Chalcopyrite.
Henry James.....	Cache Valley Minerals.
A. L. Greene.....	Collection of Shells and Woods from the Samoan Islands.
John Reed.....	Indian Arrow-Heads and Relics.
Grant Soap Co.....	Salt Lake Temple Carved in Soap.
R. S. Betts, Benjamin, Utah..	Mineral Specimens.



The Museum. contains 4,500 species of Rocky Mountain Flora, 400 microscopic slides geological, biological, and mineralogical sets, farm products, curios, etc.; and collections of native woods and Utah farm products.



Reading Room. is open every school day to the students and the general public from 9 a. m. to 4 p. m. Besides the books and pamphlets, over one hundred of the leading periodicals are on the reading tables.

NEWSPAPERS AND PERIODICALS.

Following is a list of periodicals received at the Experiment Station library, through the courtesy and liberality of the publishers, in exchange for the publications of the Station. Free access to these and other publications is allowed to College students and to the general public. The list comprises nearly all the best agricultural papers of the country, and in connection with the College list of periodicals, constitutes an excellent current library of agriculture and related sciences.

Agricultural Epitomist, Indianapolis.	Gardening, Chicago.
Agriculturist, Minneapolis.	Grange Visitor, Lansing, Mich.
American Agriculturist, Chicago.	Hoard's Dairyman, Atkinson, Wis.
Am. Agriculturist, San Francisco.	Holstein Friesian Register, Brattleboro, Vt.
American Creamery, Chicago.	Hospodar, Omaha.
American Cultivator, Boston.	Indiana Farmer, Indianapolis.
America Fertilizer, Philadelphia.	Industrial American, Lexington, Ky.
American Gardening, New York.	Industrialist, Manhattan, Kan.
Am. Grange Bulletin, Cincinnati.	Journal Board of Agriculture, London.
American Sheep Breeder and Wool Grower, Chicago.	Journal of Agriculture, St. Louis.
American Swineherd, Chicago.	Jersey Bulletin, Indianapolis.
Baltimore Weekly Sun, Baltimore.	Kansas Farmer, Topeka.
Bell's Weekly Messenger, London.	Live Stock Indicator, Kansas City, Mo.
Breeders' Gazette, Chicago.	Live Stock Report, Chicago.
Cal. Cultivator and Poultry Keeper, Los Angeles.	L'Industrie Laitiere, Paris, France.

Canadian Live Stock Journal, Toronto.
 Chronique Agricole, Lausanne, Switz.
 Church and Farm, Salt Lake City.
 Clover Leaf, South Bend.
 Colman's Rural World, St. Louis.
 Connecticut Farmer, Hartford.
 Country Gentleman, Albany, N. Y.
 Creamery Journal The, Waterloo, Ia.
 Cultivator, Omaha, Neb.
 Dairy The, London, Eng.
 Dairy World, Chicago.
 Dakota Farmer, Aberdeen, S. D.
 Elgin Dairy Report, Elgin, Ill.
 Farmers' Advance, Burlington, Vt.
 Farmers' Call, Quincy, Ill.
 Farm and Dairy, Ames, Ia.
 Farm, Field and Fireside, Chicago.
 Farm and Fireside, Philadelphia.
 Farmers' Guide, Huntingto, Ind.
 Farm and Home, Chicago.
 Farmers' Home, Dayton, O.
 Farm Journal, Philadelphia.
 Fruit Grower and Trade Review, San Francisco.
 Farmers' Magazine, Springfield, Ill.
 Farm News, Springfield, O.
 Farm and Orchard, Las Cruces, N. M.
 Farmers' Review, Chicago.
 Farm, Stock and Home, Minneapolis.
 Field and Farm, Denver.
 Louisiana Planter, New Orleans.
 Milch Zeitung, Breiten, Germany.
 Mirror and Farmer, Manchester, N.H.
 National Dairyman, Kansas City, Mo.
 Nebraska Farmer, Lincoln, Neb.
 Neue Zeitschrift fur Rubenzucker-Industrie, Berlin, Ger.
 New England Farmer, Boston.
 Ohio Farmer, Cleveland, O.
 Orange Judd Farmer, Chicago.
 Practical Farmer, Philadelphia.
 Prairie Farmer, Chicago.
 Revue Internationale des Falsifications, Amsterdam, Hol.
 Rural Canadian, Toronto, Ont.
 Rural Life, Waterloo, Ia.
 Scottish Farmer, Glasgow, Scotland.
 Southern Cultivator, Atlanta, Ga.
 Stockman and Farmer, Helena, Mont.
 Successful Farmer, Sioux Falls, S. D.
 Sugar Beet, Philadelphia.
 Texas Farm and Ranch, Dallas, Tex.
 Ulster Agriculturist, Belfast Ireland.
 Weekly Tribune, New York.
 Western Agriculturist and Live Stock Journal, Quincy, Ill.
 Wisconsin Agriculturist, Racine.
 Wool, Mutton and Pork, Minneapolis.
 World, semi-weekly, New York.



The Library is located in the north end of the building in a large, attractive well lighted room. Books are taken free, by the student, for two weeks at the time.

About 6,000 bound volumes and many bound pamphlets are accessible to students. This list comprises 3,000 carefully selected books in the college library, 2,800 volumes belonging to Prof. MacEwan, and the private collection of several other professors.

The following are received by the College library:

Agricultural Science.	Ogden Standard
American Agriculturist.	Popular Science Monthly.
American Garden.	Provo Dispatch.
American Horticulturist.	Psyche.
American Naturalist.	Public Opinion.
American Machinist.	Review of Reviews.
Breeders' Gazette.	San Francisco Chronicle.
Brigham City Bugler.	Salt Lake Tribune.
Cosmopolitan.	Sanitarium.
Deseret News.	Salt Lake Herald.
Engineering News (London.)	Season.
Edinburg Review.	Scientific American and Supplement.
Forum.	Werner's Voice Magazine.
Harper's Bazaar.	Table Talk.
Hoard's Dairyman.	The Post, Paris, Ida.
Journal of Education.	The Tooele Transcript.
Ladies' Home Journal.	The Utonian.
Logan Journal.	The Veterinarian (London.)
Logan Nation.	Youth's Companion.
Millard County Blade.	

A boarding house is connected with the College. It contains thirty three rooms. These rooms are 12x14 feet, exclusive of a good closet. Each room has registers for ventilation, and is furnished with a looking glass, a full set of chamber ware, a wash stand, tables chairs, and either a bedstead or two cots.

In addition to the rooms for the students, there are rooms for matron and for cooks, a fine large students' reception room, 19x27 feet, a model kitchen, a dining room, a pantry supplied with modern conveniences, a laundry room and bath rooms. Cost of board, room, and light, \$2.75 per week.



Dormitory.

STUDENTS.

GRADUATES, 1895.

With the degree of Bachelor of Science in Agriculture:

Louis Alfred Merrill.....Richmond, Cache County, Utah.

With the degree of Bachelor of Civil Engineering:

Will Fred Culmer.....Salt Lake City

With certificates for the completion of the Short Commercial course:

Charles A. Jensen.....Hyrum, Cache County, Utah

John Thomas Fitzgerald.....Park City, Summit County, Utah

John Stewart,Plain City, Weber County, Utah

List of Graduates, 1894.

Course in Agriculture.

Robert Wesley Erwin, B. S.....Logan.

Course in Domestic Arts.

Martha Hoyt, B. S.....Kamas.

Course in Civil Engineering.

William Bernard Dougall, B. C. E.
.....Springville.

Andrew Bernstoff Larsen.....Levan.

Commercial Course.

Ernest John Broberg.....Logan.

Byron Blanchard.....View.

John Alvin Crockett.....Logan.

Joseph Geertson.....Huntsville.

Field Thexton Ingalls.....Springville.

John Albisus Malia.....Park City.

Alpheous Oresta Packard.....Springville.

Isaac Perry Stewart.....Logan.

Short Course in Agriculture.

Oscar Crittenden.....Hoytsville.

Short Course in Domestic Arts.

Victoria Lundberg.....Logan.

Attena Bates.....Hyde Park.

POST-GRADUATE:

Martha Hoyt,Kamas.

SENIOR.

Culmer, W. F.....Salt Lake City. Merrill, L. A.Richmond.

JUNIOR.

Harris, J. J.....Ogden. Merrill, Lorin.....Richmond.

Larsen, Christian.....Logan. McLaughlin, Walter W.....Logan.

Lundberg, Victoria.....Logan. Rhead, J. L.....Coalville.

Merrill, Amos.....Richmond. Thompson, J. R.....Richmond.

SOPHOMORE.

Berg, Cornelius.....Logan. Mendenhall, John F.....Springville.

Fitzgerald, John T.....Park City. Nelson, J. B.....Logan.

Humphreys, Thos. H.....Paris, Idaho. Smith, Mamie.....Preston, Idaho.

Jensen, Charles A.....Hyrum. Stewart, John.....Plain City.

Maughan, Rachel.....Petersboro. Welsh, J. W.....Coalville.

FRESHMAN

Allen, Mary I.....	Logan.	Hayball, Alfred H.....	Logan.
Anderson, Mary.....	Logan.	Hess, J. A.....	Georgetown, Idaho.
Atkinson, Fred.....	Dayton, Idaho.	Holden, Edward H. Jr.....	Logan.
Bailey, Beulah.....	Sanford, Colo.	Holther, J. D.....	Ogden.
Baker, John S.....	Mendon.	Horner, Rose.....	Oxford, Idaho.
Bankhead, John.....	Wellsville.	Horner, W. H., Jr.....	Oxford, Idaho.
Barker, Olla M.....	Ogden.	Hubbard, Jennie.....	Willard.
Beers, William.....	Antelope, Idaho.	Irvine, Ray.....	Logan.
Berryman, C. W.....	Blackfoot, Idaho.	Kent, Jesse.....	Lewiston.
Boydén, Walter M.....	Coalville.	Lee, Ernest A.....	Springville.
Brossard, Louis.....	Oxford, Idaho.	Lee, James A.....	Tailorsville.
Bullen, Ethel.....	Richmond.	Lessing, Isadore.....	Minersville.
Bullen, Mabel.....	Richmond.	Macfarlane, John M.....	St. George.
Bunce, Emma.....	Logan.	Maughan, Elizabeth.....	Petersboro.
Bybee, Mary J.....	Lewiston.	McCausland, Georgina.....	Logan.
Cafferty, Carrie M.....	Lewiston.	McCune, Edward H.....	Nephi.
Cantwell, Ambrosine.....	Millville.	Merrill, Ezra J.....	Richmond.
Carver, Lewis H.....	Plain City.	Merrill, F. M.....	Richmond.
Clark, Fred G.....	Ogden.	Merrill, Lucille.....	Richmond.
Clemens, Edith.....	Soda Springs, Idaho.	Molen, William.....	Menan, Idaho.
Cole, Sarah E.....	Logan.	Page, Nellie.....	Payson.
Cragran, Katie.....	Smithfield.	Paul, Maude.....	Logan.
Crockett, Fred W.....	Logan.	Peterson, Hanst.....	Smithfield.
Crockett, John A.....	Logan.	Peterson, William.....	Bloomington, Ida.
Deal, Roe A.....	Springville.	Pitkin, Agnes.....	Millville.
Eliason, Isaac.....	Soda Springs, Idaho.	Pond, Charles.....	Lewiston.
Ellsworth, Frank.....	Lewisville, Idaho.	Poulson, Andrew J.....	Richfield.
Fernette, Frank.....	Park City.	Pugmire, Nora.....	St. Charles, Idaho.
Fisher, Minnie.....	Oxford, Idaho.	Rainey, Jennie.....	Richmond.
Fjeldsted, Estella.....	Logan.	Smith, Winifred.....	Beaver.
Funk, Jas. W.....	Richmond.	Sorensen, Joseph.....	Huntsville.
Gibson, Wesley.....	Smithfield.	Stone, Ellen.....	Logan.
Griffin, Ute E.....	Richmond.	Stowell, Ephraim.....	Logan.
Hamson, Claudia.....	Oxford, Idaho.	Tarbet, Annie.....	Logan.
Hansen, N. M. Jr.....	Logan.	Toolson, George.....	Smithfield.
Hansen, Peter C.....	Soda Springs, Ida.	Van Orden, Wm.....	Lewiston.
Harris, Alexander.....	Richmond.	Weaver, Ida.....	Ibapah.
Harris, A. L.....	Richmond.	Widtsoe, Osborne.....	Logan.
Harris, Gertrude.....	Lewiston.	Wride, Minnie N.....	Payson.
Harris, Harry.....	Beaver.	Wright, Lester T.....	Ogden.
Harris, S. A.....	Junction.		

PREPARATORY & SUB-FRESHMAN.

Anderson, Lottie.....	Weston, Idaho.	Larson, Hyrum M.....	Newton.
Anderson, Robert.....	Logan.	Larson, J. J.....	Newton.
Andrus, A. B.....	St. George.	Larson, Victoria.....	Collinston.
Andrus, Gideon.....	St. George.	Lee, Frank A.....	Leoni, Idaho.
Baker, Willard.....	Mendon.	Leishman, Ida.....	Logan.
Ballif, Joseph F.....	Logan.	Lewis, Eugene.....	Logan.
Beck, Samuel.....	Salt Lake City.	Lewis, Thos. C.....	Logan.
Bergeson, John.....	Lewiston.	Martineau, Theodore.....	Juarez, Mex.
Bernhisel, Julia A.....	Lewiston.	Mathews, Hopkin C.....	Providence.
Bindrup, Martha.....	College Ward.	Matson, Amanda.....	Logan.
Brower, Geo. Alvin.....	Lewiston.	McAlister, W. L.....	Logan.
Brower, Wm. G.....	Lewiston.	McCann, Mary A.....	Smithfield.
Brown, Agnes M.....	Wellsville.	McCracken, Wm. R.....	Smithfield.
Brown, Lucy.....	Providence.	McGarry, James.....	Beaver.
Bridge, Frank.....	Paris, Idaho.	McLean, Andrew.....	Chicago.
Buelher, Louisa.....	Logan.	McNiel, Ellen.....	Logan.
Bullock, Winnie B.....	Providence.	Medford, Albert.....	Gentile Valley, Ida.
Burton, Winnie E.....	Custer, Idaho.	Medford, J. F.....	Gentile Valley, Ida.
Callan, Steven Jas.....	Dayton, Idaho.	Mendenhall, Ada.....	Franklin, Idaho.
Cantwell, Harriet.....	Millville.	Mendenhall, Lorin.....	Franklin, Idaho.
Chambers, Thos. H.....	Smithfield.	Mendenhall, Neoma.....	Franklin, Ida.
Christensen, Ephraim.....	Logan.	Merrill, Frederick W.....	Richmond.
Christensen, Nephi.....	Newton.	Middleton, F. W.....	Hamiltonsville.
Christensen, William.....	Logan.	Miller, Maud L.....	Murray.
Christian, Guy.....	Beaver.	Mills, Albert.....	Hoytsville.
Christian, Marion.....	Beaver.	Mitchener, Myrtie M.....	Stockton.
Christiansen, Christen.....	Hyrum.	Morehead, J. H.....	Smithfield.
Coburn, Wm. Jr.....	Weston, Idaho.	Morehead, Mary J.....	Smithfield.
Connelley, Thos.....	Park City.	Morgan, Etta W.....	Paris, Idaho.
Coombs, Geo. R.....	Farmington.	Morgan, Fannie.....	Paris, Idaho.
Corry, George H.....	Cedar City.	Napper, Chas. E.....	Logan.
Cox, Howard.....	Manti.	Nelson, Oluf A.....	Logan.

Cragun, Reno.....	St. George	Nelson, William.....	Newton.
Cregges, Wm. C.....	Lewiston.	Nibley, Osmond.....	Richmond.
Cummings, M. E. Jr. Salt Lake City.		Nielson, Leo.....	Logan.
Cummings, Tracy.....	Salt Lake City.	Norman, Nore.....	Paradise.
Curtis, Harry B.....	Blackfoot, Idaho.	Norris, S. J.....	Salt Lake City.
Dahle, Joseph.....	Logan	Olsen, Martha.....	Weston, Idaho.
Davenport, Frank.....	Logan.	Orchard, Alvin.....	Lewiston.
Drysdale, Eliza.....	Logan.	Ord, R. J.....	Nephi.
Dunn, John V.....	Frisco.	Parkinson, Wm. B.....	Logan.
Eames, Ezra.....	Logan.	Peck, Leo.....	Gentile Valley, Ida.
Edwards, John H.....	Logan.	Peterson, Chas. P.....	Richfield.
Eliason, Phoebe.....	Logan.	Peterson, Jos. H.....	Huntsville.
Ercanbrack, Chas. F.....	Goshen.	Peterson, Jos. S.....	Logan.
Facer, Susie M.....	Willard.	Peterson, Lettie.....	Hyde Park.
Farr, Winslow.....	Logan.	Pike, Thos. W.....	Logan.
Felt, Charles E.....	Ibapah.	Porter, M. E.....	Logan.
Ferguson, Geo. W.....	Ibapah.	Powers, Diantha A.....	Smithfield.
Fife, Finis.....	Providence.	Pugmire, Leroy.....	St. Charles, Ida.
Fife, Wallace.....	Providence.	Pugmire, Moroni.....	St. Charles, Ida.
Foss, Calvin Z.....	Farmington.	Pugmire, Richard.....	St. Charles, Ida.
French, Edward.....	Montpelier, Idaho.	Rainey, Chloe.....	Richmond.
Froyd, Alfred.....	Cedar City.	Raymond, Laura.....	Smithfield.
Gee, Wm. E.....	Lewiston.	Read, Chas. M.....	Pocatello, Idaho.
Gleason, John C.....	Sunset.	Rheidoll, Louis.....	Newton.
Gleason, Meady.....	Sunset.	Rice, Nanna.....	Logan.
Gleason, Phoebe.....	Sunset.	Rich, Libbie.....	Montpelier, Idaho.
Goldsberry, Orson S.....	Paradise.	Rich, Thomas.....	St. Charles, Idaho.
Gonzalez, Ramon.....	Onasta, N. M.	Richards, C. W.....	Fielding.
Goodwin, Lottie.....	Logan.	Ricks, Harney.....	Logan.
Gorton, Henry C.....	Soda Springs.	Roberts, Edgar T.....	Afton, Wyo.
Green, Alma L.....	Menan, Idaho.	Robison, Lenore.....	gan.
Griffin, Harry N.....	Salt Lake City.	Robison, Mary.....	Montpelier, Idaho.
Griffin, Walter.....	Newton.	Robison, Robert L.....	Logan.
Groot, Cornelius J.....	Corinne.	Sanderson, Wm. J.....	Malad, Idaho.
Guio, Presley.....	Minersville.	Scott, David.....	Millville, Idaho.
Hafen, Adolph.....	Santa Clara.	Severn, Lizzie.....	Montpelier, Idaho.
Hanks, Frank.....	Logan.	Shaw, Chas. H.....	Paradise.
Hansen, Emma.....	Providence.	Shilling, N. F.....	Ogden.
Hansen, Geo. D.....	Providence.	Shurtliff, Asel E.....	Logan.
Hansen, Jas. E.....	Providence.	Simmonds, W. W.....	Trenton.
Hanson, August J.....	Logan.	Sjoberg, Arnell F.....	Millville.
Hanson, Chas. W.....	Ione, Idaho.	Skeen, Willard A.....	Plain City.
Hanson, Nephi P. N.....	Newton.	Smith, Arthur.....	Beaver.
Hanson, Willard.....	Collinston.	Smith, Elaine.....	Providence.
Harmon, Geo. J.....	Manti.	Smith, Ernest C.....	Smithfield.
Harris, Emma.....	Richmond.	Smith, Isaac Leroy.....	Lewiston.
Hatch, Vivian.....	Ogden.	Smith, Maud.....	Minersville.
Hayball, George O.....	Logan.	Smith, Parley.....	Lewiston.
Henderson, J. T.....	Oneida, Idaho.	Smith, Robert.....	Logan.
Hendricks, Wm.....	Richmond.	Smith, Willis.....	Smithfield.
Herd, James.....	Franklin, Idaho.	Sorenson, Christian.....	Huntsville.
Hillman, Wm. H.....	Oxford, Idaho.	Sorenson, Theona.....	Huntsville.
Hirst, Lydia.....	Paradise.	Spahn, Karl.....	Salem.
Hoff, Beatrice.....	Georgetown, Idaho.	Staker, E. M.....	Rockport.
Hogenson, Christian.....	Newton.	Stocks, Jas. Halley.....	Lewiston.
Holbrook, B. C.....	Bountiful.	Stucki, Mary J.....	Paris, Idaho.
Holladay, J. W.....	Santaquin.	Sweeten, R. L.....	Mendon.
Holladay, Lucy A.....	Santaquin.	Taylor, George F.....	Plain City.
Hubbard, Alma.....	Millard.	Telford, J. E.....	Richmond.
Humphreys, Chas. R.....	Paris, Idaho.	Thatcher, H. E.....	Gentile Valley, Ida.
Huntsman, Sarah.....	Wellsville.	Thatcher, Roy.....	Logan.
Huttballe, Hans.....	Logan.	Thomas, Fenretta.....	Smithfield.
Izatt, Maggie A.....	Logan.	Thomas, Nathan A.....	Logan.
Jacobs, Fred.....	Logan.	Thorley, Lehi A.....	Cedar City.
James, David W.....	Paradise.	Tracy, D. T.....	Ogden.
Jenkins, Margaret.....	Oneida, Idaho.	Van Leuven, Lucinda.....	Lewiston.
Jensen, Elsie.....	College Ward.	Warner, Lizzie.....	Montpelier, Ida.
Jensen, Mary.....	Hyde Park.	Watson, William.....	Logan.
Jensen, Peter.....	Newton.	Webb, William.....	Fillmore.
Jeppson, Heber.....	Brigham.	Wheeler, David.....	Franklin, Idaho.
Johnson, Carl.....	Newton.	Whitmore, G. M.....	Nephi.
Johnson, Louise.....	Stockton.	Wilbur, J. M.....	Eden.
Jones, Effie.....	Providence.	Wilbur, O. K.....	Eden.
Jorgensen, Moses.....	Logan.	Williamson, Orson.....	St. Charles Ida.
Kilgore, Dora.....	Logan.	Wilson, Amy.....	Logan.
Kimball, Ernest.....	Logan.	Wilson, J. E. Jr.....	Logan.
Kimball, Orson H.....	Logan.	Winger, Olie.....	Hyrum.
Kirkbride, Jas. Jr.....	Smithfield.	Wood, Frank H.....	centon.
Lafount, Harold.....	Logan.	Woolf, Clara.....	Hyde Park.
Larson, Caroline.....	Sunset.	Yeates, John.....	Millville.
Larson, David.....	Collinston.		

SPECIAL.

Ballif, Addie.....	Logan.	Jeffs, Samuel.....	Farmington.
Ballif, Harriet.....	Logan.	Jorgenson, Malvena.....	Logan.
Behunin, J. H.....	Ferron.	Katsunuma, Thomas.....	Japan.
Bell, Effie.....	Logan.	Lindquist, Amelia.....	Logan.
Betts, R. S.....	Benjamin.	Lindsay, Jane.....	Taylorville.
Bullock, Harriet	Providence.	Morton, J. W.....	Wellsville.
Cantwell, Edith.....	Millville.	Morton, L. W.....	Wellsville.
Cranney, H. K. Jr.....	Logan.	Muir, W. S.....	Randolph.
Davenport, Helen.....	Logan.	Ormsby, Ray L.....	Logan.
Drury, Chas. J.....	Hyde Park.	Paul, Birdie.....	Salt Lake City.
Gilmer, Mrs. M. E...Salt Lake City.		Read, John.....	Logan.
Hyde, Emma.....	Logan.	Roberts, John J.....	Paradise.
Hanson, Lizzie	Logan.	Rogers, H. T.....	Logan.
Israelson, A. M.....	Hyrum.	Smith, Alice.....	Logan.

TOTAL.....360

Average age of all students 1894-5, 19 years.



WEATHER FORECASTS.

The Experiment Station is now in receipt of the telegraphic weather forecasts from the forecast official of the Department of Agriculture located at San Francisco. The forecasts are telegraphed each day (Sundays and holidays excepted) at government expense. The signal flags are now displayed from the flagpole of the College in full view of the valley below. These forecasts or warnings are of great value to the farming community. In 1893 the percentage of verification of the forecasts for the Pacific Coast division was 83.7. For Utah, which is part of this division, the percentage was likewise 83.7. In the report of the Secretary of Agriculture for 1893, the importance of these forecasts is emphasized, and doubtless some means will be devised in the near future whereby these forecasts will be placed within the reach of every farmer in the country. An explanation of the flag signals is shown on the last inside page of the cover.



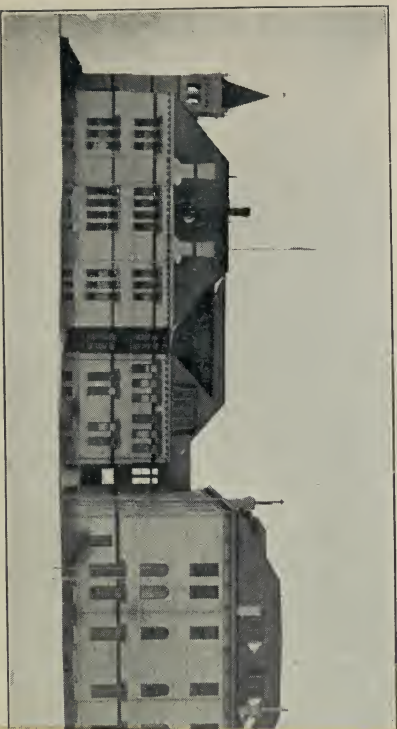
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ERRATA.

Page 11. Insert "Modern History, 3," in first term of the Sophomore year.

Page 16, line 9, read: "require, men trained in both the theory and the practice."

Page 25. Under "Books of Reference," read: "Convenient Houses with Fifty Plans for the Housekeeper—Gibson. Barn Plans and Outbuildings and Stables and Outbuildings—Bicknell. Barn Buildings—Sanders."

Page 27. Read under "Soils and Fertilizers," the list of reference books given under "Stock-feeding."

Page 33. Read "Elementary Chemistry," from page 69.

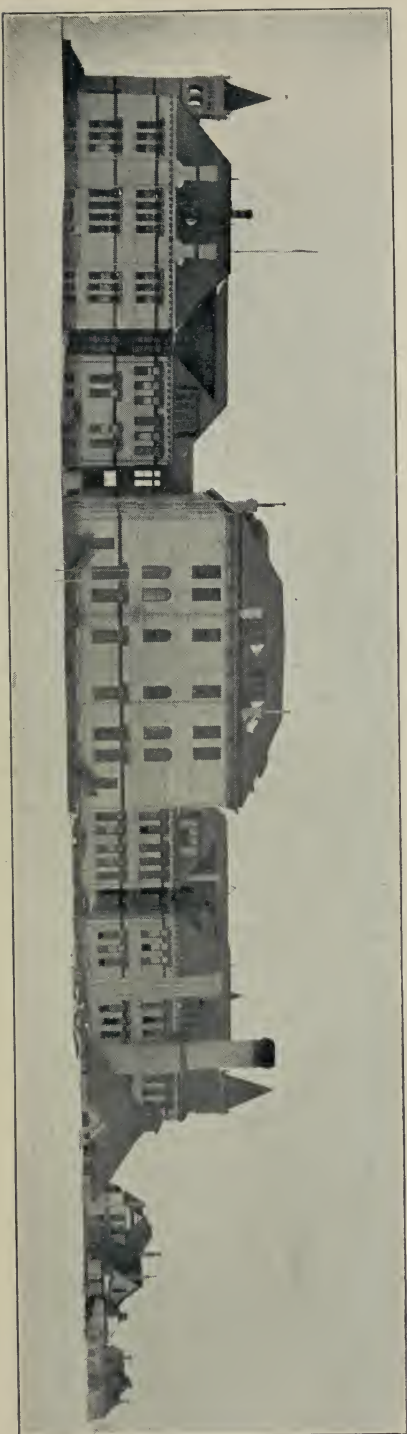
Page 53. Under "Infantry," in place of sign read sight.

Page 74. Under "Students," read: Andrew Bernstoff Larsen, B. C. E.

Insert in list of Preparatory and Sub-Freshman: "Corry, John H., Cedar City; Goodwin, Roy, Logan; Hartvigsen, Annie J., Hyrum; Larsen, Eliza, Collinston."

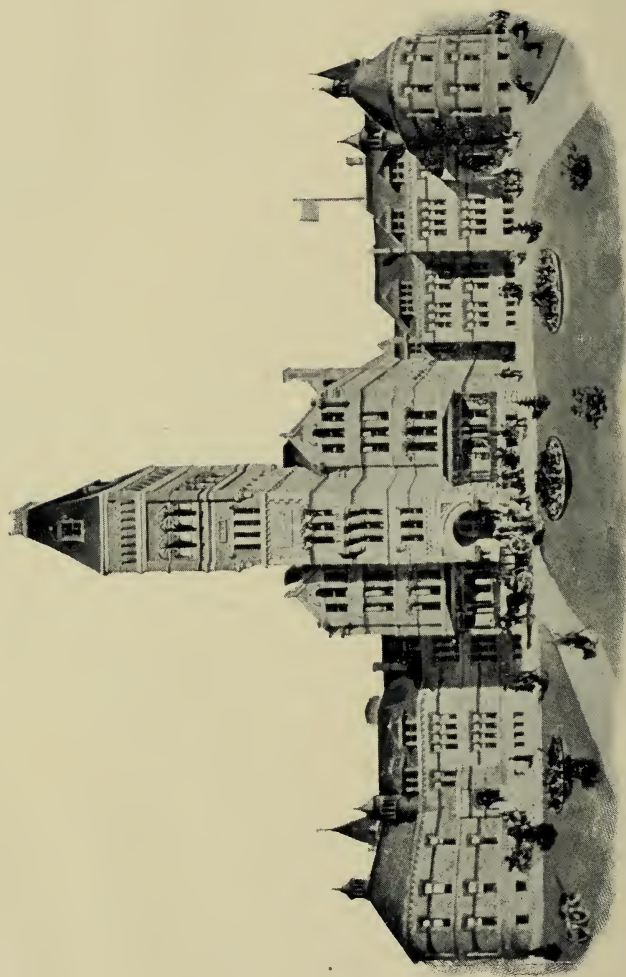
NOTE.—Students have been classified according to their lowest study; e. g., a Freshman or a Sophomore taking a preparatory study is classified under "Preparatory" or "Sub-Freshman."

A typographical error in each of the following words was overlooked by the printer: P. 16, engineering; p. 18, relation; p. 22, psychology, butter-making and exceptions; p. 34, accommodate; p. 36, necessary; p. 46, immortality; p. 69, stoichiometrical; p. 71, schoolday and periodicals.



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ANNUAL CATALOGUE

—OF THE—

AGRICULTURAL COLLEGE

OF UTAH

FOR THE YEAR 1896-7.



LOGAN, UTAH.

PRESS OF SMITH, CUMMINGS & CO., LOGAN.

CALENDAR-1896

1897

JANUARY.

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COLLEGE CALENDAR, 1896-7.

FIRST TERM begins Tuesday September 15, and ends Friday December 18, 1896.

SECOND TERM begins Tuesday January 5, and ends Friday April 2, 1897.

THIRD TERM begins Wednesday April 6, and ends Wednesday June 16, 1897.

Commencement Exercises occur from Sunday June 13, to Wednesday June 16.

HOLIDAYS.

Thanksgiving Day.

Christmas vacation, Dec. 20, to Jan. 4.

Washington's Birthday, Feb. 22.

Arbor Day, April 15.

Decoration Day, May 30.

Summer vacation begins June 17.

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PAUL FISCHER	Consulting Veterinarian
	Horticulturist
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JAMES D. DRYDEN	Clerk and Stenographer
LORIN A. MERRILL	Assistant in Dairy Department
WALTER W. McLAUGHLIN	Assistant Chemist
JOHN STEWART	Assistant Chemist
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JOSEPH E. HYDE	Secretary

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WALTER W. McLAUGHLIN, B. S.,

Assistant in Chemical Laboratory of Experiment Station.

JOHN STEWART,

Assistant in Chemical Laboratory of Experiment Station.

ESTABLISHMENT OF THE COLLEGE.

An Act of Congress, approved July 2, 1862, provided that public lands should be granted to the several states, to the amount of "thirty thousand acres for each senator and representative in Congress," for the establishment and maintenance of an agricultural college in each state. By the terms of the recent act providing for the admission of Utah as a state, the amount of public lands granted to the Agricultural College of Utah was increased to 200,000 acres.

The national law provides that from the sale of this land there shall be established a perpetual fund "the interest of which shall be inviolably appropriated, by each state which may take and claim the benefit of this act, to the endowment, support, and maintenance of at least one college, where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the states may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life." The act forbade the use of any portion of the aforesaid fund, or of the interest thereon, for the purchase, erection, or maintenance of any building or buildings.

This land became available upon the admission of the Territory to statehood.

The legislature of Utah in 1888, accepted the provisions of the national law by the passage of an act which founded the College, defined its policy, prescribed its work, and indicated its sphere.

"SEC. 12.—The course of instruction shall embrace the English language and literature, mathematics, civil engineering, agricultural chemistry, animal and vegetable anatomy and physiology, the veterinary art, entomology, geology, and such other natural sciences as may be prescribed, technology, political, rural, and household economy, horticulture, moral philosophy, history, bookkeeping, and especially the application of science and the mechanical arts to practical agriculture in the field."

"SEC. 10.—In the appointment of professors, instructors, and other officers and assistants of said college, and in prescribing the studies and exercises thereof, no partiality or preference shall be shown by the trustees to one sect or religious denomination over another; nor shall anything sectarian be taught therein; and persons engaged in the conducting, governing, managing or controlling said College and its studies and exercises in all its parts, shall faithfully and impartially carry out the provisions of this act for the common good, irrespective of sects or parties, political or religious."

It is clear that the Agricultural College was founded in the interest of the industrial classes in the several pursuits and professions of life, to give not alone a technical education, but, in the language of the law, a "liberal and practical education." The legislative founders of this institution sought to place within reach of the producing classes, an education that the older institutions had not, as a rule, made provisions for.

The policy of the College is in consonance with the letter and the spirit of the laws upon which it was founded. Its courses of instruction represent the great vocations of the people of Utah: agriculture, the mechanic arts, commerce, and home work.

"The act of 1862," says Senator Morrill, "proposed a broad education by colleges, not limited to a superficial and dwarfed training, such as might be had in an industrial school, nor a mere manual training such as might be supplied by a foreman of a workshop, or by a foreman of an experimental farm. If any would have only a school with equal scraps of labor and of instruction, or something other than a college, they would not obey the national law."

Under an act of Congress, approved March 2, 1887, the College receives \$15,000 annually for the maintenance of its experimental work in agriculture. This is in charge of the department known as the Agricultural Experiment Station.

Under an act of Congress approved March 30, 1890, the College received for its more complete endowment and maintenance "the sum of fifteen thousand dollars for the year ending June thirteenth, eighteen hundred and ninety." The act provides that this amount shall be increased by one thousand dollars each year until the annual appropriation reaches twenty-five thousand dollars. The amount received under this law for the present year will be \$22,000.

The legislature of 1888 gave \$25,000 for buildings. The county of Cache and the town of Logan gave one hundred acres of land on which to locate the College. The legislature of 1890 appropriated \$48,000 for apparatus, for the employment of teachers, and for the construction of a house, barn, two laborer's cottages, and an experiment station building. The legislature of 1892 gave \$108,000 for an addition to the College building, two houses, apparatus, and salaries of teachers. The legislature of 1894 appropriated \$15,000 for the purchase of apparatus, for a greenhouse, a veterinary laboratory, and the employment of teachers. The legislature of 1896 appropriated \$12,000 for the construction of workshops, and general expenses for one year.

The State auditor reports the value of the College property now in possession at the conservative figure of \$225,721.

The Constitution recently framed by the Territorial Convention, for the new State of Utah, provides:

"Sec. 4.—The location and establishment by existing laws of the University of Utah and the Agricultural College are hereby confirmed, and all the rights, immunities, franchises, and endowments heretofore granted or conferred, are hereby perpetuated unto said University and College respectively."

LOCATION OF THE COLLEGE.

The College is located on a broad hill overlooking the town, one mile east of Main Street, Logan, commanding a view of the entire valley and of its surrounding mountain ranges. The beauty of the location is unsurpassed, and perhaps unequaled by that of any other college in the country. A few hundred yards to the south is the Logan River, with its clear water and luxuriant grasses and shrubs. A mile to the east is a magnificent mountain range and a picturesque canyon. In other directions the towns and farms covering the green surface of Cache Valley, constitute a delightful and impressive panorama through the clear atmosphere. The city is noted for its freedom from vice; is quiet, orderly, clean, and generally attractive, with neat homes, fine public buildings, and electric lights and water system; the citizens are thrifty and progressive. The city has a population of about 6,000, and is the capital and commercial centre of an agricultural county with more than three times that population, known as Cache Valley. The valley is a fertile, slightly uneven plain, 4,500 feet above sea level, about sixty by twelve miles in dimensions, almost entirely under cultivation, completely surrounded by the Wasatch Mountains, and one of the most beautiful and healthful valleys in the western region.

EQUIPMENT OF THE COLLEGE.

THE MAIN BUILDING is one of the finest in the West, being a large handsome brick structure, about 360 feet long and nearly 200 feet deep in the central part. It is complete, as shown in the frontispiece, excepting the central front.

It contains a large auditorium, with seating capacity for 1500 people, which is used for college entertainments, and for assemblies of the students and their friends. A smaller auditorium, capable of seating 400, is used daily as a chapel,

and for the weekly meetings of the College literary society. The class rooms are sixty in number, all large, well lighted, well heated, and well ventilated.

The basement contains the shops for wood-work and iron-work, and the foundry. These departments are well supplied with the usual wood and iron working machines, and with the necessary appliances for metal casting. The machine shops are equipped with engine, lathes, planers, and other machines of recent construction. A new building for shop work is in course of construction, and will, probably, be completed and in use during the ensuing year.

The dairy rooms, containing the best apparatus for the manufacture of butter and cheese on scientific principles, are situated in the basement.

The laundry, kitchen and dining rooms, which are efficiently fitted with the requisite apparatus in each division, are also in the basement.

The sewing and millinery rooms are on the first floor.

The biological, botanical, entomological, chemical and physical laboratories are situated on the second floor, and are very efficiently equipped with the most modern apparatus for experiment and research in the respective sciences.

The commercial department, which is well equipped with the appliances for banking, commercial and general business, is also situated on the second floor.

On the third floor are the gymnasium and the museum, large rooms as fully equipped as the means at the disposal of the Board of Trustees have hitherto rendered possible. The gymnasium is also used as a drill hall for young women and for social gatherings of the faculty and students. The museum has a large unused capacity, therefore donations in any of the arts and manufactures or in geological, ethnological, mineralogical, zoological and other divisions of science, from the citizens of Utah or from other friends of education will be thankfully accepted.

The library, of which full details will be found on a following page, and the music rooms, which are supplied with

superior instruments, are all situated in the principal building.

The main building is heated by steam and lighted by electricity in every part. The rooms are light and pleasant and the halls spacious, extending on each floor the entire length of the building.

THE EXPERIMENT STATION building is a large brick structure, containing the laboratories of the Agriculturist, Chemist, and Horticulturist; the office of the Director of the Station, and the library of the Professor of English. Advanced students participate in the work of the various laboratories, and a series of experimental researches is carried on in each division by the professor in charge.

A MODEL BARN AND STOCKYARD are connected with the College. The barn is a wooden building about sixty feet square and contains a silo, a root cellar, an engine room and separate quarters for horses, cattle, sheep and swine; also model storage divisions for hay, grain and farming and horticultural implements.

A DORMITORY is connected with the College and contains accommodation for about seventy-five students. Each room is about 12 x 14 feet, exclusive of a good closet and is furnished with chairs, tables, a wash-stand, a full set of chamber ware, a looking glass, and either a bedstead or two cots; there are also registers for efficient ventilation.

In addition to the rooms for the students, there are rooms for matron and for cooks and domestics, a model kitchen, a large dining hall, a pantry supplied with modern conveniences, a laundry and bath rooms. A large reception room 19x27 feet, is used for students receptions, under the auspices of the President's wife, the ladies of the faculty and the wives of the members of the faculty.

RESIDENCES for the College President, the Director of the Experiment Station, and the Farm Superintendent are situated on the Campus. Cottages for farm laborers have also been provided.

A FORCING HOUSE AND A VETERINARY LABORATORY, both

well fitted for their purposes, are situated on the College grounds.

THE FARM of about one hundred acres is well stocked with the best breeds of cattle, sheep and swine, and is fully provided with improved implements and farm machinery.

THE GARDENS AND ORCHARDS, which are extensive and well stocked, are devoted to experimental horticulture and pomology.

Three and a half acres of ground, close to the College building are appropriated to the use of students, for athletic sports.

THE FACULTY consists of about twenty-five members, thoroughly educated gentlemen and ladies, many of them of long and successful experience in practical and industrial, as well as general education.

OBJECTS.

The College is in several ways accomplishing the objects for which it has been endowed:

I. It gives a substantial education to men and women. Such general information and discipline of mind and character as help to make intelligent and useful citizens are offered in all its departments, while the students are kept in sympathy with the callings of the people.

II. It teaches the sciences applied to the various industries of farm, shop, and home. Chemistry, botany, entomology, zoology, and mechanics are made prominent means of education to quick observation and accurate judgment. Careful study of the minerals, plants and animals themselves illustrates and fixes the daily lessons. At the same time lessons in agriculture, horticulture, engineering and household economy show the application of science; and all are enforced by actual experiment.

III. It trains in the elements of the arts themselves, and imparts such skill as to make the hands ready instruments

of thoughtful brains. The drill of the shops, gardens, farm and household departments, is made a part of the general education for usefulness, and insures a means of living to all who make good use of it. At the same time it preserves habits of industry and manual exertion, and cultivates a taste for rural and domestic pursuits.

IV. It strives to increase experimental knowledge of agriculture and horticulture. The provision for extensive and accurate research, made by establishing the Experiment Station as a distinct department of the College, offers assurance of more definite results than can be obtained by ordinary methods.

REQUIREMENTS FOR ADMISSION.

1. Graduates of the Eighth grade of the district schools are permitted to enter the sub-freshman year without examination.

2. To enter the freshman year the student must be at least fifteen years of age, and must pass a satisfactory examination in the following subjects, using the texts named or their equivalents:

1. Reading, spelling, and penmanship.
2. Geography—Appleton's *Higher Geography*.
3. United States History—Barnes's *United States History*.
4. Grammar—Maxwell's *Advanced Lessons*.
5. Arithmetic—Harper's *Second Book*.

Students may be admitted without examination from an accredited high-school, academy, or other institution, if they present certificates of the completion of the subjects named above; they are also admitted upon completion of the sub-freshman studies in this College.

DIRECTIONS TO STUDENTS.

The regular examinations for new students are held on the first two days of each term. Irregular students are ex-

amined when they enter. The studies to be taken are assigned by the examiners and approved by the president.

The entrance fee (\$5) is then paid at the secretary's office; and the class card naming the studies to be pursued is countersigned by the president and the secretary. The card admits the student to his classes, and when signed by the several professors entitles him to all the privileges of membership. The student returns this card to the secretary. The course of study, as thus marked out, cannot be varied by the student except upon petition to the faculty.

When students enter for the second and third terms, the cards are secured from the secretary of the faculty, the studies assigned by the president, the cards signed by the professors and returned to the secretary, as before

COURSES OF STUDY.

The first year is the same for all the four year courses, and there is but a slight variation in the second year.

The studies and training of these years have been laid out with care; and students are not permitted to vary from the course shown in the outline, except as herein provided.

1.—Students in either course in Domestic Arts take sewing and dressmaking in the freshman year, in the place of shop work in wood and iron, as indicated by the footnote to schedule. In the sophomore year, second term, they take lectures on cooking, and laboratory practice in cooking in the place of trigonometry and electricity and magnetism; and in the third term, lectures on the science of nutrition, and laboratory practice in cooking instead of surveying and elementary mechanics.

2.—In the several short courses, the studies of the first two years are varied far enough to meet the requirements of this class of students.

The studies of the first two years are planned to meet the requirements of the most numerous class of students, the majority of whom attend for two years or less after com-

pleting the studies of the district schools. These two years, as now planned in the schedule, provide as broad culture in a general way, and as thorough preparation for the special courses which follow, as the College is at present able to offer. It cannot assume, therefore, to vary the courses further than is indicated above; and students are expected to pursue the studies as here laid down or as many of them as they are able to pursue.

AGRICULTURAL COURSE.

The aim of this course is the general education and scientific training of the future agriculturists of Utah. The training is as thorough as is possible in the short time allotted. The principal exercises directly related to the successful pursuit of agriculture are taught, but no pretension is made to train specialists in any one particular branch of science. The time for this is necessarily too short.

Under *agriculture* in the junior and senior years are included a great variety of subjects, the intelligent pursuit of which requires as a foundation a certain knowledge of chemistry, physiology, zoology, botany, and other sciences. The freshman and sophomore years are intended to give this preparatory training.

The Short Agricultural Course, extending over a period of two years, is offered to those students whose time or means will not permit them to devote four years to a training for their future vocation. It is made as practical as possible in order to meet the demands of the most numerous class.

The College also offers during the winter, a special course of lectures on practical agricultural topics, intended to reach those farmers who can leave their farms for a few short winter months only, but who appreciate the advantages of a knowledge of the fundamental principles underlying their business. The lectures in this course are of a popular character and have met with much success.

The figures in the following course schedules denote the number of hours devoted to each subject during the week.

STUDIES IN AGRICULTURAL COURSE.

FRESHMAN YEAR.

FIRST TERM.	SECOND TERM.	THIRD TERM.
Grammar 5	Rhetoric 5	Literature 5
Algebra 5	Algebra 3	Algebra 2
Grecian History 2	Geometry 2	Geometry 3
Physics 3	Roman History 2	English History 3
Drawing 3	Physics 3	Physics 2
Elocution 2	Drawing 3	Drawing 3
	Elocution 2	Elocution 2

Afternoon Work.

Shopwork 10	Shopwork 10	Shopwork 10
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SOPHOMORE YEAR.

Chemistry 3	Chemistry 3	Chemistry 3
Rhetoric 2	Rhetoric 2	Rhetoric 2
Solid Geometry and } 5	Trigonometry 5	Botany 5
High Algebra {	Anatomy and { 5	Anatomy and { 5
Civil Government and } 5	Physiology {	Physiology {
Constitutional Law {		

Afternoon Work.

Chemistry 6	Chemistry 6	Chemistry 6
Anatomy and { 2	Anatomy and { 2	Anatomy and { 2
Physiology {	Physiology {	Physiology {

JUNIOR YEAR.

Agricultural Chemistry 3	Agricultural Chemistry 3	Economic Botany 3
Literature 5	Horticulture 5	Horticulture 5
Agriculture 3	Agriculture 3	Agriculture 3
German 3	German 3	German 3
Biology 2	Zoology 2	Zoology 2

Afternoon Work.

Agricultural Chemistry 4	Agriculture 2	Agriculture 4
Bacteriology 6	Mineralogy 6	Zoology 6
	Zoology 2	

SENIOR YEAR.

Dairying and } 5	Agriculture 5	Agriculture 3
Stock Breeding {	Veterinary Science 5	Veterinary Science 5
Veterinary Science 5	German 3	German 3
German 3	Entomology 2	or Literature 5
Entomology 2		Geology 5

Cheesemaking—Mondays.

Afternoon Work.

Butter Making 2	Horticulture 2	Agriculture 2
Physiological Botany 4	Veterinary Anatomy 4	Entomology 4 or Botany 4

SHORT AGRICULTURAL COURSE.

FIRST YEAR.

FIRST TERM.	SECOND TERM.	THIRD TERM
Agricultural Chemistry.3	Agricultural Chemistry.3	Agricultural Chemistry 3
Agriculture3	Agriculture3	Agriculture3
English Grammar 5	Rhetoric5	Literature5
Physics3	Physics 2	Botany5

Afternoon Work.

Chemistry6	Chemistry 6	Chemistry 6
Shopwork 4	Agriculture.....4	Agriculture 4

SECOND YEAR.

Dairying & Stock Br'dg 5	Agriculture.....5	Agriculture3
Veterinary Science. ... 5	Veterinary Science ... 5	Veterinary Science ...5
Physiology5	Horticulture 5	Horticulture.....5
Cheesemaking, Mondays	Entomology 2	Economic Botany ...3

Afternoon Work.

Buttermaking, etc ...2	Horticulture2	Agriculture 2
Shopwork6	Veterinary Science4	Shopwork. 6

MECHANICAL ENGINEERING COURSE.

The aim of the Mechanical Engineering Course is to afford the student such training as will qualify him to deal intelligently with engineering problems in general, and prepare him for a professional career. While the distinctive purpose of the course is to give instruction in the designing and construction of machinery, considerable instruction is given in municipal, irrigation, and general engineering to form a basis for practice in these special branches.

The instruction in all branches aims to blend the theoretical with the practical, so that the student may become familiar not only with the purely scientific phase of the work, but with its application to modern practice. The student is brought, as early as possible, into contact with practical problems, the graphical as well as the analytical method being used throughout in their solution. Besides the practical tendency of the course, it has a high disciplinary value, and is especially adapted to develop originality of thought and action.

The more strictly professional work may be classified as

mathematics, physics, applied mechanics, drawing, and shop-work. Sufficient work in English, history, and other general subjects is given throughout the course, to meet all ordinary demands.

STUDIES IN MECHANICAL ENGINEERING COURSE.

FRESHMAN YEAR.

FIRST TERM.

English Grammar	5
Algebra	5
Physics	3
Grecian History	2
Elocution	2
Drawing	3

SECOND TERM.

Rhetoric	5
Algebra	3
Plane Geometry	2
Physics	3
Roman History	2
Elocution	2
Drawing	3

THIRD TERM.

Literature	5
Plane Geometry	3
Algebra	2
Physics	2
English History	3
Elocution	2
Drawing	3

Afternoon Work.

Shop-work	10
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Shop-work	10
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Shop-work	10
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SOPHOMORE YEAR.

Chemistry	3
Rhetoric	2
Solid Geometry and Higher Algebra	5
Civil Government and Constitutional Law	5

Chemistry	3
Rhetoric	2
Trigonometry	5
Heat and Electricity	5

Chemistry	3
Rhetoric	2
Analytical Geometry	5
Elementary Mechanics	3
Surveying	2

Afternoon Work.

Chemistry	6
Shop-work	4

Chemistry	6
Physics	4

Chemistry	6
Field Surveying	4

JUNIOR YEAR.

Hydraulics	2
Literature	5
Calculus	3
Descriptive Geometry	2
Mechanical Drawing	5

Hydraulics	3
Calculus	5
Descriptive Geometry	2
Elements of Mechanism	2
Mechanical Drawing	5

Materials of Engineer'g	5
Calculus	3
Metallurgy, Iron & Steel	2
Elements of Mechanism	3
Mechanical Drawing	5

Afternoon Work.

Machine Shops	10
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Pattern Making	10
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Machine Shops	10
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SENIOR YEAR.

Applied Mechanics	5
Steam Engineering	3
Municipal Engineering	5
Dynamics of Machines	3

Applied Mechanics	5
Steam Engineering	3
Irrigation Engineering	5
Power, Measurement, and Transmission	5

Applied Mechanics	5
Steam Engineering	3
Applied Electricity	5
English Literature	5

Afternoon Work.

Machine Design	10
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Machine Design	10
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Thesis	10
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CIVIL ENGINEERING COURSE.

The instruction in this course extends over a period of four years and embraces nearly all the subjects that properly belong to a civil engineer's education. Its aim is not only to afford a training of a practical as well as theoretical nature to such students as are preparing to enter the profession of civil engineering, but to prepare young men for successful careers in manufacturing, contracting, and mining pursuits.

Every high structure requires a broad base; and he who wishes to attain a high position in any branch of engineering must first lay deep and broad the foundation in language, literature, pure mathematics, and general science. As soon as the entrance examination to the freshman year can be raised, a modern language will be added to this course; but for the present some knowledge of the English language and its literature, will have to satisfy the literary requirements.

Greater prominence has been given to that branch of engineering which relates to the storage, conveyance and use of water, since the material prosperity of the greater part of Western America is, to a great extent, dependent upon the available water supply and the use which it subserves. The design and construction of irrigation works, the need of competent managers and superintendents to operate them, and the supervision and control of the public waters, require men trained in both the theory and practice of hydraulic engineering. Already the farms of Utah, chiefly through irrigation, yield a revenue, exclusive of stock raising and the dairy, of over \$6,000,000 per annum.

When so much can be done by the badly constructed irrigation works of the pioneers, it may reasonably be expected that much greater returns can be obtained by a more scientific management of the water supply. By increased storage and diminished waste, by more accurate measuring apparatus and more economical methods of application, it

may be possible ere long to double the value of the profits from irrigation farming.

Surveying extends over a period of three years; and the student who completes this course, is supposed to be fairly proficient, not only in the theoretical part of the work, but in the use of instruments and in making surveys of farm lands, city lots, canals and railroads. The object is to qualify young men for the positions of county surveyor, assistant city engineer, and level man and transit man on engineering parties.

The engineering problems connected with municipal corporations, are increasing so rapidly that it was deemed wise to introduce a course in municipal engineering.

Through the exertions of civic reformers, trained specialists are securing permanent and remunerative positions in connection with city administration; and there is reason to hope that in the course of a few years the street supervisors, building and sanitary inspectors, water, sewer and gas superintendents, and members of the boards of public works in American cities will, be appointed solely on the basis of efficiency in their respective departments.

It has been thought that the best way to secure well qualified city officers is to begin to teach some of the principles and to familiarize students with the practice involved in such subjects as rapid transit, pure domestic water supply, sewerage and sanitation, and gas and electric lighting.

STUDIES IN CIVIL ENGINEERING COURSE.

FRESHMAN YEAR.

FIRST TERM.	SECOND TERM.	THIRD TERM.
English Grammar.....5	Rhetoric..... 5	Literature.....5
Algebra.....5	Algebra..... 3	Plane Geometry.....3
Physics.....3	Plane Geometry.....2	Algebra..... 2
Grecian History.....2	Physics.....3	Physics..... 3
Elocution.....2	Roman History..... 2	English History..... 3
Drawing.....3	Elocution..... 2	Elocution..... 2
	Drawing..... 3	Drawing.....3
AFTERNOON WORK.		
Shopwork.....10	Shopwork.....10	Shopwork.....10

SOPHOMORE YEAR.

FIRST TERM.

Chemistry	3
Rhetoric	2
Solid Geometry and Higher Algebra, {	5
Civil Governm't and Constitutional Law {	5

SECOND TERM.

Chemistry	3
Rhetoric	2
Trigonometry	5
Heat and Electricity....	5

THIRD TERM.

Chemistry	3
Rhetoric	2
Analytical Geometry..	5
Elementary Mechanics	3
Surveying	2

AFTERNOON WORK.

Chemistry	6
Shopwork	4

Chemistry	6
Physics.....	4

Chemistry	6
Field Surveying	4

JUNIOR YEAR.

Hydraulics	2
Literature	5
Calculus	3
Surveying	3
Descriptive Geometry..	2
Mechanical Drawing...	3

Hydraulics	3
Logic	3
Calculus	5
Descriptive Geometry..	2
Elements of Mechanism	2

Materials of Engineer'g	5
Roads and Pavements..	3
Calculus.....	3
Metallurgy	2
Elements of Mechanism	3

AFTERNOON WORK.

Field Practice in Engi- neering.....	8
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Drawing and Designing	6
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Hydrographic Survey- ing and Designing..	6
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SENIOR YEAR.

Higher Surveying	5
Applied Mechanics.....	5
Municipal Engineer'g..	5
Steam Engineering.....	3

Power, Measurement, and Transmission	5
Applied Mechanics.....	5
Irrigation Engineering	5
Railroad Structures. .	3

Sanitation	3
Applied Mechanics.....	3
Literature	5
Applied Electricity....	5

AFTERNOON WORK.

Experimental Work, En- gineering Designs. .	8
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Mineralogy and Assay- ing	6
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Preparation of Thesis.	
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DOMESTIC ARTS COURSE.

The course for young women is in general the same as for young men in the four years course in agriculture, except in the hours devoted to the shop, the farm, or to horticultural work. In place of these there are special studies adapted to women's work.

The value and necessity of special training in household economy are too well known to require explanation.

It will be seen that special attention is given to those branches of study in which young women require proficiency, and to those studies which tend to adorn life in the sphere in which they move.

If the place given to horticulture, floriculture, and economic botany, should require explanation, it may be sufficient to say that this line of work has a fascination for all classes, and everywhere claims the admiration and almost the affection of every person of true refinement. Household plants and the farm and village garden are always objects of interest and of importance to women, and often the source of physical health, inducing, as they do, exercise in the open air. This does not necessitate the added drudgery of physical work in the garden any further than pleasure may dictate. A special class is taught in floriculture, especially as adapted to window gardening, in the preparation of soil, and in the growth of vegetables and small fruits. Exercises in the application of the knowledge acquired in the lecture room are a regular feature of the work.

Upon completion of the freshman and the sophomore year of the regular Domestic Arts Course, the student is entitled to a certificate of graduation in the short course.

STUDIES IN DOMESTIC ARTS COURSE.

FRESHMAN YEAR.

FIRST TERM.	SECOND TERM.	THIRD TERM.
Grammar.....5	Rhetoric5	Literature5
Algebra.5	Algebra.....3	Algebra ... 2
Grecian History.2	Geometry2	Geometry.....3
Physics3	Roman History.2	English History... 3
Elocution2	Physics3	Physics2
Drawing3	Elocution2	Elocution2
	Drawing3	Drawing.....3

AFTERNOON WORK.

Laundrying and Sewing 5	Sewing5	Dressmaking..5
Physical Culture3 (Elective)	Physical Culture.....3 (Elective)	Physical Culture...3 (Elective)

SOPHOMORE YEAR.

Chemistry3	Chemistry3	Chemistry3
Rhetoric2	Rhetoric.....2	Rhetoric2
Solid Geometry and Higher Algebra.....5	Cooking (Lectures)....5	Science of Nutrition....5
Civil Government and Constitutional Law...5	Anatomy and Physio- logy.....5	Botany5

AFTERNOON WORK.

Fruit Work	4	Cooking Practice	4	Cooking Practice	4
Chemistry	6	Chemistry	6	Chemistry	6

JUNIOR YEAR.

Literature	5	Logic	3	Hygiene	5
German	3	German	3	German	8
Drawing	5	Drawing	5	Drawing	5
Biology	2	Zoology	2	Horticulture	5
Psychology	3	Designing, Cutting and Fitting	5	Millinery	2

AFTERNOON WORK.

Bacteriology	6	Zoology	2	Floriculture	6
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SENIOR YEAR.

History	5	Political Economy	3	Literature	5
German	3	History	5	German	3
Household Managem't	5	German	3 and 2	Dairying	3
Aesthetics	3	Fancy Work	5	Geology	4
		Entomology	2		

AFTERNOON WORK.

Dairying	4	Household Accounts	3	Geology	4
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DOMESTIC ARTS SHORT COURSE.

This includes the studies of the freshman and sophomore years as given in the regular Domestic Arts Course.

The privilege is given of substituting, subject to the approval of the faculty, a household economy study for some study in the regular sophomore year.

COMMERCIAL COURSE.

The object of this course is to broaden the intelligence of accountants, and to prepare students for positions as business men, who form a large class, having a direct and important relation to the material, social, and political life of the nation. They should have associated with their technical work a knowledge of those subjects that will give them an enlarged view of their varied relations as citizens of the state. The college, therefore, offers here a much

broader general education than is common in commercial courses.

The technical feature of the course is a thorough training in penmanship, typewriting, stenography, commercial arithmetic, bookkeeping, business economics, political economy, history of commerce, and commercial law. The course is broad enough to prepare students for teaching, or for the study of the law.

For those who are unable to take the four years course, a course of two years is offered, which will fairly well qualify them for positions as accountants, and stenographers.

The department is well equipped with desks, counters, and typewriters, making the presentation of the technical work as practical as is possible in a college.

COMMERCIAL COURSE.

FRESHMAN YEAR.

FIRST TERM.	SECOND TERM.	THIRD TERM.
Grammar5	Rhetoric5	Literature5
Algebra 5	Algebra3	Algebra2
Greek History.2	Geometry2	Geometry3
Physics..... 3	Roman History2	English History.....3
Drawing3	Physics..... 3	Physics2
Elocution2	Drawing 3	Drawing3
	Elocution2	Elocution 2

AFTERNOON WORK.

Penmanship5	Penmanship5	Penmanship 5
Typewriting..... 5	Typewriting.....5	Typewriting5

SOPHOMORE YEAR.

Chemistry3	Chemistry3	Chemistry3
Rhetoric2	Rhetoric2	Rhetoric 2
Solid Geometry and Higher Algebra5	Trigonometry.....5	Botany 5
Civil Government. . .5	Anatomy and Physi- ology.....5	Anatomy and Physi- ology5

AFTERNOON WORK.

Chemistry 6	Chemistry 6	Chemistry6
	Anatomy2	Anatomy2

JUNIOR YEAR.

FIRST TERM.	SECOND TERM.	THIRD TERM.
Stenography 5	Stenography 5	Stenography 5
German 3	German 3	German 3
Commercial Arithmetic 5	Advanced Commercial	Geology 5
Psychology 3	Arithmetic 5	Science of Bookkeeping 3
Biology 2	Logic 3	Zoology 2
	Zoology 2	
AFTERNOON WORK.		
Bacteriology 6	Mineralogy 6	Zoology 6
	Zoology 2	

SENIOR YEAR.

Commercial Law 5	Commercial Law 5	Commercial Law 5
German 3	German 3	German 3
History of Commerce . . 5	Political Economy . . . 3	Business Economics . . 3
Literature 5	Elective 5	Literature 6

AFTERNOON WORK.

Practical work in bookkeeping, banking, freighting, insurance, and kindred subjects, from 2 to 4 daily.

SHORT COMMERCIAL COURSE.

FIRST YEAR.

FIRST TERM.	SECOND TERM.	THIRD TERM.
Grammar 5	Rhetoric 5	Literature 5
Algebra 5	Algebra 3	Algebra 2
Greek History 2	Geometry 2	Geometry 3
Physics 3	Roman History 2	English History 3
Drawing 3	Physics 3	Science of Bookkeeping 3
Elocution 2	Drawing 3	Drawing 3
	Elocution 2	Elocution 2

AFTERNOON WORK.

Penmanship 5	Penmanship 5	Penmanship 5
Typewriting 5	Typewriting 5	Typewriting 5

SECOND YEAR.

Stenography 5	Stenography 5	Stenography 5
Rhetoric 2	Rhetoric 2	Rhetoric 2
Commercial Arithmetic 5	Advanced Commercial	Commercial Geography 5
Civil Government 5	Arithmetic 5	Commercial Law 5
	Political Economy . . . 3	

AFTERNOON WORK.

Practical work in bookkeeping, banking, freighting, insurance, and kindred subjects.

GENERAL SCIENCE COURSE.

This course is believed to be especially adapted to the need of those preparing to study medicine or pharmacy, or to take technological training abroad. It will also offer excellent preparation for those who expect to engage in teaching, especially in the teaching of the natural and physical sciences.

The student will elect either biology or chemistry, or physics, as a major study, and will take all the subjects specified under the course so elected. He must select from the other courses subject to the approval of the professor who teaches them, enough subjects to complete the course.

For the freshman and sophomore year, see Agricultural and Domestic Arts courses.

JUNIOR AND SENIOR YEARS.

Either biology, or physics, or chemistry, as follows:

BIOLOGY.

Anatomy and Physiology.....	Two Terms	General Biology	Three Terms
Bacteriology	One Term	Zoology, advanced	Two Terms
Entomology	Two Terms	Anthropology.....	One Term
English Literature	Two Terms	German	Six Terms
Geology.....	One Term	Organic Chemistry.....	Two Terms

CHEMISTRY.

Agricultural Chemistry.....	Two Terms	Organic Chemistry.....	Two Terms
Gen. Analyt. Chemistry.....	Three Terms	German	Six Terms
English Literature.....	Two Terms	Mineralogy ..	One Term
Geology	One Term	Zoology.....	Two Terms

PHYSICS.

Advanced Physics.....	Six Terms	Heat	One Term
Hydraulics.....	Two Terms	Strength of Materials	Two Terms
Geology.....	One Term	Analytical Geometry.....	Two Terms
Descriptive Geometry.....	Two Terms	Calculus.....	Three Terms
German.....	Six Terms	English Literature	Two Terms

The additional electives are to be chosen subject to the approval of the professor in charge of the department in which the major study has been chosen, and the faculty.

DEPARTMENTS OF INSTRUCTION.



In previous pages the order in which studies are pursued has been stated. Under the present title a somewhat detailed account will be given of the topics embraced in the several departments of instruction.

AGRICULTURE, ANIMAL INDUSTRY AND DAIRYING.

PROFESSORS FISCHER AND LINFIELD.

I. FARM EQUIPMENTS. This includes all the work coming under the designation "agriculture" in the first term of the junior year in the long course and in the corresponding term of the first year in the short course. The work covers in a general way the following topics: History of agriculture; barns and other farm buildings, including fences; the making of various plans by the student; roadmaking, draining, and irrigating; farm machinery. These general and practical subjects are placed in the first term because at that time the student is not prepared with a sufficient knowledge of elementary science to take up any of the specific subjects successfully. PROF. FISCHER.

II. BREEDS OF LIVESTOCK. This is made to include: The history and description of the different breeds of stock; their origin and development into the specialized animals of to-day; the effect of climate and management on the animals and their adaptability to various localities and purposes. The judging of live stock puts into practice the knowl-

edge gained in the class room; the student from exterior points tells the relative value of the animals for special purposes. PROF. LINFIELD.

III. SOILS AND MANURES. By the end of the second term of the junior year, in the long course, or first year in the short course, the student will have a sufficient knowledge of elementary science to study successfully the subject of soils and manures, these subjects covering the work in agriculture during the third term.

The following topics are included: The origin and composition of soils, general management of different soils and sub-soils, with their relation to successful crop production; manures, natural and artificial, their source and composition, differences in character, and the value of liquid and solid manures of different animals for different purposes; handling and preservation of natural manures; application of manures to different soils and for various crops; reclamation of alkali soils and worn out soils; preservation of original soil fertility. PROF. FISCHER.

IV. DAIRYING. Three hours a week during the first term of the senior year of the long course second and of the second year of short course are given to this subject as follows:

1. *Milk*: The elaboration, composition, and fermentation, of milk; the testing of milk, with a description of the methods used in paying for milk by the test, and in determining the worth of milk;

2. *Buttermaking*: The different methods of creaming milk and getting the best results are described; the handling and ripening of the cream, churning, salting, working, packing, and marketing the butter;

3. *Cheesemaking*: Cheddar cheesemaking is described; the making of a uniform product and dealing with practical difficulties are fully illustrated; a brief description is also given of the manufacture of other kinds of cheese, particularly of such kinds as may be made in a home dairy;

4. *Factories:* Factory organizations; the building, equipment, and management of factories are fully treated;

5. Practical work in the college dairy is given in testing milk, in buttermaking, and cheesemaking, during the fall term to all agricultural students; during the winter term to the Special Course students and during the spring term to the students in the Domestic Arts Course. PROF. LINFIELD.

V. STOCK BREEDING. This subject occupies two hours a week, during the first term of the senior year of the long course, and of the second year of the short course;

1. *Breeding:* The laws of reproduction, heredity, reversion, selection, period of gestation, and pedigree are fully discussed;

2. *Management of Live Stock:* This embraces a practical application of the principles of breeding, with a full description of methods of caring for the different classes of live stock from birth till final disposition. PROF. LINFIELD.

VI. FARM CROPS. This includes the history, uses, composition, cultivation and handling of different farm crops; the principles of rotation; the management of meadows and pastures. It occurs in the second term, senior year of the long course, and second year of the short Course, five times a week. PROF. FISCHER.

VII. STOCKFEEDING. This includes a study of the scientific principles underlying the profitable feeding of farm animals for market and home use. The principal topics dwelt upon are: The composition of the animal body and its various parts; the composition of food stuffs; the physiology of digestion; the adaptability of different foods for different animals; the calculation of feeding rations. It occurs three times weekly, during the last term of each course. PROF. FISCHER.

VIII. IRRIGATION ENGINEERING is intended to include the mechanical principles of draining and irrigating farm

lands; it occurs five times weekly for about four weeks of the second term of the senior year of the long course, or the second year of the short course. PROF. FORTIER.

BIOLOGY.

PROFESSOR BREWER.

I. ANATOMY AND PHYSIOLOGY. Lectures and recitations are given on human and comparative anatomy, illustrated by models, anatomical preparations, diagrams, and dissections.

The lecture course is supplemented by laboratory work both in the winter and spring terms, consisting of dissections of small animals; the study of osteology and a consideration of the elements of histology are also undertaken.

II. GENERAL BIOLOGY. The course of lectures on general biology and the accompanying laboratory work cover the usual range of topics. The difference between living and dead matter is reviewed, and such subjects as protoplasm, cells, tissues and organs are considered as an introduction to specialized work. Types of the lower vegetable kingdom (not included in the botanical course) and selections from the invertebrate and vertebrate divisions of animal life are taken for illustration and for examination in the laboratory.

III. ZOOLOGY. A comparative review is given of the various functions concerned in animal life and their adaptability to the environments of the different classes of animals. The classification of the animal kingdom, the morphology and the attributes of its different members, the distribution of animals according to place and time, their present location and their primeval forms are all considered.

IV. PROTOPHYTOLOGY. So much of this subject as relates to the moulds, ferments, etc., which are important factors in human and animal life, is treated of in lectures

and illustrated in the laboratory. Algae, diatoms, desmids and other forms are also discussed and illustrated.

V. ANTHROPOLOGY. A short course is given, in continuation of the general course, discussing the different types of the human race, existent at the present time in the various countries of the world; their relations, origin, and tribal differences; their dwellings and their implements.

VI. BACTERIOLOGY. This special branch of science, which has, during the last decade, made great strides, and which is so intimately connected with diseases affecting both man and animals, occupies a full course of lectures and also receives adequate laboratory exemplification. Research work in the germ causatives of disease, especially of animals, is made in connection with the experiment station, and students are familiarized with the processes used in bacteriology, such as the preparation of culture media, the culture and separation of germs, staining and mounting specimens of various bacteria, making sections of tissue, and general microscopical work.

The laboratory contains a full set of apparatus for the work of investigation, similar to that used in the laboratories of Professor Koch in Berlin, and of Professor Pasteur in Paris. Microscopes, microtomes, and the general accessories of laboratory investigation are also used by the students. It is intended that the course shall be so directed as to be of practical value after the College curriculum has been completed.

SANITARY SCIENCE. A course of lectures is given on the general principles of sanitary science as applied to the selection of sites for homes and the erection of the house; ventilation and heating; water supply and its uncontaminated preservation; removal of refuse and waste; food, its uses and abuses; adulterations of food and their detection, and general hygienic subjects.

BOTANY.

PROFESSOR FISCHER.

The work in this department may be classed under three heads:

I. **ELEMENTARY BOTANY.** This is given five times a week, during the spring term of the sophomore year in all the long courses, and in the first year of the Short Agricultural Course. It is a course in structural and systematic botany. The students are required to provide themselves with an inexpensive outfit, consisting of a three-legged lens, a sharp pocket knife and two dissecting needles. At the end of the term, each student must present an herbarium of fifty analyzed and neatly mounted and labeled specimens

II. **PHYSIOLOGICAL BOTANY.** This is a laboratory course in plant histology, supplemented by lectures on plant physiology. It belongs to the senior year of the Agricultural Course.

III. **ECONOMIC BOTANY.** This is a general review of the history and uses of economic food, timber and medicinal plants, including a discussion of some of the most noxious weeds, and suggestions for their eradication.

In the last term of the senior year, two afternoons a week are devoted to the collection of a small local herbarium.

CHEMISTRY.

PROFESSOR WIDTSOE.

I. **ELEMENTARY CHEMISTRY.** This is a study of the important facts and fundamental theories of chemistry; the laws of chemical combination; the writing of reactions, and practice in solving stoichiometrical problems, together with the applications of chemistry in the arts and manufactures. Students taking this subject must also take the course in elementary practical chemistry.

II. ELEMENTARY PRACTICAL CHEMISTRY. This course supplements the preceding course and furnishes the necessary practical preparation for qualitative analysis. The non-metallic elements, mainly, are studied with reference to their combinations with each other; their reactions are verified, and the facts and theories of the lecture room are tested by experiments.

III. QUALITATIVE ANALYSIS. This course runs parallel with the descriptive study of the metals and their compounds and supplements. Under the direction of the instructor in chemistry the students apply with their own hands the reagents necessary to determine the composition and properties of chemical compounds. They thus gain a practical knowledge of the methods of chemical analysis and manipulation. Each student is required to analyze and report on forty unknown substances. This work is deemed extremely important from an educational as well as from a practical point of view. Laboratory work occupies six hours a week for thirty weeks.

IV. AGRICULTURAL CHEMISTRY. This is a series of lectures treating of the chemical problems of agriculture; composition of plants; sources of plant food; chemistry of animal nutrition, soils and dairy products. In the laboratory are taught the methods of agricultural analysis.

V. ORGANIC CHEMISTRY. This course is planned for students who intend to fit themselves for professional work in chemistry. It consists of a brief survey of the reactions and compounds of the fatty and aromatic series of hydrocarbons and their derivatives, together with a full discussion of the nature and influence of molecular structure. In the laboratory the student makes a number of organic preparations, which in their formation involve the methods of oxidation, reduction, substitution and synthesis.

NOTE: Each student taking a laboratory course in chemistry is required to deposit \$2.50 for the first term and \$1.25 for each succeeding term, to pay for chemicals, and to cover breakage.

COMMERCIAL BRANCHES.

PROFESSOR SHEPARD.

I. PRACTICAL BOOKKEEPING. The student obtains some capital, rents a place of business, deposits his money in the bank, transacts all kinds of business, thereby bringing into daily use such business forms as notes, drafts, checks, bill heads, statements, shipping invoices, account sales, receipts, deposit slips, certificates of deposit, mortgages, deeds, leases, insurance policies, bills of exchange, bills of sale. He is keeping books according to the shortest and most approved methods in various kinds of business, such as general merchandise, grocery, dry goods, clothing, coal, lumber, furniture, drug, jobbing, commission and shipping, brokerage, real estate, and for joint stock companies and corporations. Various business relations are entered into in the formation of agencies, partnerships, joint stock companies and corporations.

II. HISTORY OF COMMERCE. This work is done by recitations and lectures. The student makes a careful study of the principal countries of the world from which such staple articles of commerce as food, textile and mineral substances, metals and manufactured products are obtained. He notes the kinds and amount of such products from those countries, and the dependence of each upon every other for the necessities and luxuries of life; he learns how markets are created and controlled; how waterways and railways afford a ready means of transportation and influence trade; and how the improved mail, postal, telephone and telegraph services facilitate the interchange of thought and also influence trade. Statistics are gathered showing the magnitude of the world's production. Practical commercial problems of the day are discussed in class.

III. COMMERCIAL LAW. This embraces a study of the customs and the law of the nature, formation, operation, interpretation, and discharge of contracts, including agency, partnership, corporation, bills, notes and checks, purchase and

sale of personal property, guarantee or suretyship, limitation of the time to sue, commission merchants and brokers, agreements for personal services, bailments, insurance, telegraphic communication, patents, copyright, trade marks, real estate conveyances, and the business and legal forms that are used to carry on trade.

IV. COMMERCIAL ARITHMETIC. This consists in a drill in addition, multiplication, division, fractions, measurements, metric system, percentage, profit and loss, commission, interest, discount, storage, equation of accounts, partnership settlements, and all the problems that the average business man is called upon to solve. Short methods are studied and practical devices presented.

V. BUSINESS ECONOMICS. The economic laws of trade, the general principles of Political Economy technically applied to commerce, and a discussion of business methods are carefully examined.

VI. PENMANSHIP. A plain legible style of writing with a rapid movement is taught daily throughout the year. It is required of commercial students; elective to others.

VII. SCIENCE OF BOOKKEEPING. This embraces the underlying principles of single and double entry bookkeeping; opening and closing books; journalizing, posting, and classifying accounts. Especial attention is given to making the original or charge entry, the legal as well as the scientific feature of the entry being kept in mind.

VIII. STENOGRAPHY. This is required of second year students in the Short Commercial course, and of junior students in the four years' Commercial Course. Graham's system of Standard Phonography is taught. The class is given one hour's instruction daily throughout the year.
MR. DRYDEN.

Text Book: Graham's *Handbook*.

IX. TYPEWRITING is required of all first year students in both commercial courses. Three different kinds of machine are used, the Remington, the Caligraph, and the

Smith-Premier. An hour a day is given to typewriting throughout the year. MR. DRYDEN.

DOMESTIC ARTS.

1. *HOUSEHOLD ECONOMY AND ÆSTHETICS.*

MRS. COTEY.

EXPLANATION. The course for young women gives the same general training in English, German, Mathematics and Science that is given in the other courses, together with special studies adapted to woman's work.

1. LAUNDRYING occupies the fall term and consists of practical work alternating with lectures. The practice includes plain white washing and removing stains, clear starching, best methods of doing up fine mull, of ironing shirts, cuffs and collars, washing flannels and cleaning silk and fine woolen goods. The lectures treat of the chemistry of the various materials used and of hard waters and the process of softening them. Soaps, washing fluids, bleaching powders, bluing and starch are discussed in their scientific and practical relations to laundry work.

2. FRUIT WORK includes canning by various methods, and making all kinds of preserves and marmalade; different methods of making jellies, and experiments with green and ripe fruits; the making of all kinds of ketchups, spiced fruits, sweet and sour pickles, table sauces and meat relishes; the preparing of fruit juices, cordials and syrups. The latter part of the term's work is a course of lectures on the chemical nature of fruit, its acids and sugars; the value of fruit as food, and its action on the human system; the causes of fruit fermentation, and a study of antiseptics.

3. COOKING LECTURES treat of marketing and the selection of food; general rules of measuring and mixing; best methods of baking and boiling; deep and shallow frying; the

general chemistry of cooking; carving and serving of food.

4. COOKING PRACTICE includes all kinds of plain and some fancy cooking, covering in a general way all the subjects with which a housekeeper in moderate circumstances needs to be familiar. Demonstration lessons are given at various times throughout the term on subjects difficult of treatment in the general practice.

A three-course lunch is served daily during the winter term. Members of the class take turns in presiding as hostess at the table, carving and serving plates and looking after the needs of the guests; they also take turns in waiting upon the table. The confidence and skill thus acquired are invaluable to them.

5. SCIENCE OF NUTRITION is a study of foods, their chemical composition, characteristics, digestibility; the way in which they nourish the body; the best foods to be given in certain diseases; the best food for young children; effect of age, climate and occupation on amount and kind of food required. In connection with these lectures, about forty lessons are given in preparing food for the sick.

6. HYGIENE treats of sanitary conditions about the home; dangers from damp and unclean cellars, foul drains and sinks; ventilation, heating and lighting; instruction especially necessary to women on the care of personal health; home nursing, with illustrative lessons on changing beds for the sick.

7. HOUSEHOLD MANAGEMENT consists of lectures on the convenient arrangement and economical furnishing of rooms; the best methods of doing all kinds of housework, with a view to economy of time and strength; duties of mistress and servants; entertainment of guests, and many other subjects of interest to the home-maker.

8. AESTHETICS is the science of taste and beauty. The course includes talks on fine china, pictures, furniture, decorations for the home, harmony of colors, taste in dress, and kindred subjects.

II. SEWING.

MISS BOWEN.

EXPLANATION. Besides the general advantages derived from industrial education, the object of this branch is to give a practical training in the sewing which every household requires. Neatness of work is insisted upon. The student provides her own material and makes her own garments.

1. **PIECE SEWING.** Practice is given first in the various hand stitches used in muslin and woolen goods; overhanging, running, hemming, hemstitching, overcasting, felling, gathering and stroking gathers, buttonholes, gusset, patching and darning, French hem on damask, etc.

2. **DRESSMAKING.** At least two muslin garments are made. A gown is cut out, basted and entirely made by the student.

3. **DESIGNING, CUTTING AND FITTING.** Instruction is given by talks on grace in design of costume and harmony of color. Special attention is given to hygienic modes of dress. The student is taught to make drawings of the costumes which she designs. She also learns to draft patterns from measurements. Further practice is given in cutting and fitting.

4. **FANCY WORK.** This course includes Kensington embroidery, Roman cut-work, Spanish laid-work, drawn-work, jeweled embroidery, and modern lace-making.

5. **MILLINERY.** This course comprises instruction in frame-making, facings, shirring, making bows, lining, wiring, and the like. General instruction is given in making tasteful hats and bonnets.

DRAWING.

PROFESSOR CANNON.

I. FREEHAND DRAWING. This consists in lessons and practice, perspective sketching from casts, and simple studies in light and shadow. It is required of all freshmen, the exercises coming three times a week during the year. It is made to include industrial design.

The junior students in the Domestic Arts course have special training in designing, and elementary art, suitable for young women.

II. MECHANICAL DRAWING is taught during the entire junior year. Students in this class are required to make working drawings, both detail and assembly, from measurement. Simple designs illustrating the principles taught in the class in mechanism form a prominent feature. Neatness and accuracy of execution determine largely the standard of marking.

III. MACHINE DESIGN. In machine design each student is required to make a certain number of designs carrying out the principles of applied mechanics and dynamics of machines in all calculations. Boilers, parts of engines, pulley and gear shafts, and hangers, form suitable examples for this work. The class work consists of lectures and drawing.

IV. THESIS. In general a graduating thesis in this course should consist of the execution of an original design with a descriptive dissertation or a discussion of some current engineering problem, or the result of some original research, experimental or theoretical.

ELOCUTION AND DECLAMATION.

MISS KENYON.

It is the object of this department to make good readers, easy conversers and fluent speakers; to make the voice and the body fit instruments to serve the soul and mind. The course then will include the development of the voice and the training of the body to respond to the changes of thought and emotion.

I. READING. The work consists of a study of some of the minor English classics. Those read during the past school year were Scott's *Lady of the Lake*, Longfellow's *Miles Standish*, Pope's *Essay on Criticism*, Arnold's *Sohrab and Rustum*, and Shakespeare's *Julius Cæsar*. The object of this work is incidentally to create a taste for good literature and to furnish profitable drill in the art of reading. It is required of all sub-freshmen.

II. ELOCUTION. 1. This is made to embrace voice culture, articulation and plain reading.

2. Inflection, pronunciation, gesture, and expression in reading.

3. Gesture continued, practical work in recitations and impersonation.

III. DECLAMATION AND RECITATION. All freshmen meet twice a week during the year for declamations and recitations previously prepared. These exercises aim to apply the general principles of elocution. The drill gives prominence to correct pronunciation, and distinct enunciation, as well as posture and gesture. Each student is expected to present an exercise once a fortnight or as often as the number in classes or divisions will allow.

ENGINEERING.*I. CIVIL ENGINEERING.*

PROFESSOR FORTIER.

1. **HYDRAULICS.** This includes a discussion of the fundamental laws governing the equilibrium of fluids; the flow through orifices and pipes, over weirs and in open channels; the measurement of water; the action of water upon vanes, water-wheels and pumping engines.

Text Book: Merriman's *Hydraulics*.

2. **IRRIGATION ENGINEERING** includes the location, grades, cross-sections, etc., of canals; the design and construction of flumes, head-gates, diversion weirs and dams; pipe irrigation and inverted siphons; rainfall, evaporation and seepage; methods of irrigation; duty of water; wind-mills, artesian wells, etc.

Text Books; Wilson's *Manual of Irrigation* and works of reference.

3. **ELEMENTARY SURVEYING** embraces the adjustment of instruments, the location of railways, pipe lines and canals, city, mining, and hydraulic surveying. Field practice in the afternoon of the first and third terms.

Text Book: Johnson's *Surveying*.

4. **HIGHER SURVEYING.** Measuring base lines, triangulation, practical astronomy, the determination of the meridian, time, latitude, longitude.

Text Books: Johnson's *Surveying*; Merriman's *Geodesy*.

5. **MATERIALS OF ENGINEERING.** This is a course of daily lectures throughout the last term to supplement the practical knowledge obtained in the carpentry, blacksmith, foundry, and machine shops, by notes on stone, brick, lime, cement, iron, steel, and alloys.

6. **ROADS AND PAVEMENTS.** Country roads are discussed along with highways, their location, construction

and maintenance; the paving of city streets and sidewalks; the materials used and mode of construction.

Text Book: Bryne's *Highway Construction*.

7. ROOFS AND BRIDGES. This is an application of the study of mechanics to roofs and bridges; dead and live loads; lateral truss systems; pin connected structures; rivets and riveting; marketable forms of iron and steel and their application in the design of roofs and bridges.

Text Book: Johnson's *Theory and Practice of Modern Framed Structures*.

8. MUNICIPAL ENGINEERING embraces water-works systems; gas and electric lighting; rapid transit and sewerage.

Lecture Notes.

9. APPLIED ELECTRICITY. To strengthen the civil and mechanical engineering departments it is intended soon to appoint an instructor in this subject. In the mean time the senior students will receive a course of lectures on the electric transmission of power and its efficiency as compared with compressed air, the generation of electric power by means of water, power houses and electric street railways.

10. SUMMER REPORT. Each student, upon entering the senior year in civil engineering, is required to present a report prepared by himself during the summer vacation on some structural work connected with the profession.

II. MECHANICAL ENGINEERING.

PROFESSOR JENSEN.

1. ELEMENTS OF MECHANISM. This includes a consideration of the various forms of motion and its production; link motions and their modification as used in machinery; cam and wiper outlines; wheel-trams and aggregate motions; design and construction of gear teeth; mechanism of special machinery. This subject deals with the purely geo-

metrical relations of machinery rather than with the form and design of articulating parts.

2. METALLURGY OF IRON AND STEEL. This embraces a study of the principal iron ores and their reduction according to modern methods, and the processes employed in the preparation of the iron into the various forms used for general and construction purposes.

3. STEAM ENGINEERING. This begins with a study of the various forms of valve gears now in common use, which is followed by the study of the various forms of engines, the principles of thermodynamics according to the mechanical theory of heat and its application to the steam and other vapor engines, boilers and boiler design and construction, and also methods of testing steam engines and steam boilers. A careful study is made of such data as have been derived from reliable tests in lieu of making actual tests.

4. APPLIED MECHANICS. A general discussion is given of the relation of forces and their effects in the production of motion; the derivation and application of formulæ, based upon the strength of materials as determined from actual experiment on full sized pieces, and used in determining the size of parts to be used in all engineering structures. Much stress is laid upon this subject as being the chief corner stone in the foundation of an engineering profession.

5. DYNAMICS OF MACHINES. The general effects of the inertia of the moving parts of machines are discussed.

POWER MEASUREMENT AND TRANSMISSION. This is a study of theory of friction and suitable co-efficients for use with various materials and kinds of joints; friction brakes and dynamometers; lubricators and their uses; transference of power by means of rigid contact, rope and belt driving, compressed fluids, and electrical transmission.

For a description of courses in hydraulics, municipal, and irrigation engineering, materials of engineering, applied electricity, see "Civil Engineering."

For a description of courses in mechanical drawing and descriptive geometry, see "Drawing."

For shopwork, see "Mechanic Arts."

For other courses, see "Physics and Mathematics."

ENGLISH LITERATURE AND GERMAN.

I. ENGLISH LANGUAGE AND LITERATURE.

PROFESSOR MACEWAN.

1. ENGLISH GRAMMAR. The work in English embraces grammar, rhetoric and literature, and runs parallel through all the four-year courses. In grammar, after a review of etymology, with special attention to the formation of the verb, the structure of the English sentence is carefully examined. Nearly a term is spent in analyzing sentences from classic authors. This work occupies the fall term.

2. ELEMENTARY RHETORIC. This includes the principles of invention, the elements of style and the different forms of composition. The preparation of manuscript for the printer is taught in connection with the written work. Essays are required once a fortnight, mostly reproductions, illustrating the laws of description and narration. The narrative poems from Syle's *From Milton to Tennyson* furnish matter for reproduction and study in versification. This work occupies the winter term.

3. ARGUMENTATION. Instead of more advanced general rhetoric, the rules of argument are studied; and to illustrate and enforce these, some masterpieces are critically examined. The speeches in Baker's *Specimens of Argumentation* furnish suitable material. Frequent oral and written exercises make the work entirely practical; debates, written and oral, are had on questions of general interest. Each student presents three written exercises. The work goes through the sophomore year, twice a week.

4. LITERATURE. The first work in literature follows the elementary rhetoric, occupying the third term of the fresh-

man year. It is a critical study of the short, complete classics—essays, poems of various kinds, speeches, sketches and stories. Enough of each author and his times is told in familiar lectures to awaken interest, and show the occasion of the production. In this work constant reference is made to rhetorical principles, and the style of different authors is carefully compared, and both style and form are studied with reference to the thought and sentiment. The following texts have been read:

Shakespeare's *Merchant of Venice*; Bacon's *Essays*—Selections; Milton's *L'Allegro*, *Il Penseroso*, *Hymn*, and *Lycidas*; Addison's *Sir Roger De Coverly*; Pope's *Rape of the Lock*; Gray's *Elegy in a Country Churchyard*; Goldsmith's *Deserted Village*, and *Traveller*; Burns's *Cottar's Saturday Night*, and some other poems; Wordsworth's *Ode on Immortality*, and narratives from *The Excursion*; Irving's *Sketchbook*; Tennyson's *Ulysses*, *Locksley Hall*, *Enoch Arden*; Dickens's *Christmas Carols*; selections from Emerson, Lowell, Holmes, Longfellow, and Hawthorne; the selections in Swinton's *Masterpieces*, Pancoast's *Representative Literature*; Painter's *Introduction*; Syle's *From Milton to Tennyson*.

5. HISTORY OF LITERATURE. The second course is given to a historical survey of literature, from Chaucer to the present time. Sufficient attention is given to the leading authors of the different periods to make evident the characteristics of their thought and style. The English drama receives special attention, and one day each week is given to reading Shakespeare. Much of the time is given to the critical reading of such texts as supplement, but not duplicate the first and third courses, much of the study being reported in essays. This is the work of all juniors for the first term.

6. LITERATURE: MASTERPIECES. The last term of the senior year is given to the study of longer masterpieces. All the important forms of literature are laid under contribution—the drama, the epic, the lyric, the novel, the essay biographical and critical, the oration and history. One

week is given to each piece selected. The work of the classroom is largely a report of students, either oral or written, on what they have done by themselves.

The following course, or its equivalent—texts changing somewhat from year to year—is required of all seniors, third term.

Shakespeare, two great tragedies, *Hamlet*, *Macbeth*, *Lear*, *Othello*; Webster, *Reply to Hayne*; Burke, *Conciliation with American Colonies*; Macaulay, *Essay on Milton* and *Addison*; Milton and Carlyle *Essay on Johnson*; Milton, *Paradise Lost*, I. and II., *Samson Agonistes*; Carlyle, *Essay on Burns*, *Hero as Prophet*; Tennyson, *Princess*, or selected poems; Motley, *Peter the Great*, or Southey, *Nelson*; George Eliot, *Silas Marner*; Wordsworth, *Selected Poems*, Ed. by M. Arnold; Byron, *Childe Harold*.

II. GERMAN.

PROFESSOR MACEWAN AND MR. ROBINSON.

This is the only foreign language taught in the institution, and is in three courses, three hours a week, during the junior and senior years. The Germans are now the leaders in agricultural science. The advanced student of agriculture must be able to read the literature on his subject coming from the German press. Moreover a knowledge of German is deemed essential to a liberal education. These are the reasons for the appearance of this language in these courses. Oral and written exercises are accompanied by conversation, making more familiar the vocabulary and accustoming the ear as well as the eye to the words. In the time allotted only the framework of the language can be mastered; but enough is given to enable the student to prosecute independent study and consult German books.

After completing the *Joyes-Meissner Grammar* and *Reading-book*, students are given such scientific reading material as will best equip them for using works of reference and the publications of scientific institutions and societies; or such selections from classic German literature as

are adapted to awaken an interest and stimulate further reading. Gore's or Dippold's *Scientific German Reader*; *Wilhelm Tell*, *Nathan Der Weise*, *Egmont*, *Hermann und Dorothea*, *Reisebilder*, *Ekkehart*, *Peter Schlemihl*, *Das Kalte Herz*.

ENTOMOLOGY.

PROFESSOR FISCHER.

This work extends over two terms and consists of lectures and laboratory work. In the first term the student acquires a general knowledge of the structure and classification of the insect group. The second term is devoted to lectures on economic entomology; the most common insect pests, and remedies for their control, together with methods for applying insecticides are considered.

GEOLOGY AND MINERALOGY.

PROFESSOR WIDTSOE.

I. MINERALOGY AND ASSAYING. A systematic study is made of the important mineral species according to Dana's classification. Much practice is given in blow-pipe analysis and determinative mineralogy; and in connection with the former, the simple methods of dry assaying are taught. To those especially interested in the subject, opportunities are given for practice in all methods of dry and wet assaying.

II. GEOLOGY AND LITHOLOGY. A course is given in general and economic geology in which particular attention is given to dynamical and structural geology. Along with the occurrence of rocks is studied, their mineralogical composition also. The instruction is based on a text-book but supplementary lectures are given. Weekly excursions give practice in geological field work and material for reports.

HISTORY.

PROFESSOR JOHN T. CAINE, JR.

The chief objects of this study are the fixing of the principal great historical events in the memory, the training of the reason and the historic sense, and the cultivation of the taste for historical reading. Outlines are made and memorized, and questions are suggested that require research, and stimulate independent thought. While original sources cannot well be examined, considerable reference reading is required. For this purpose, the College library is better equipped in historical literature, than in any other. Meyers's textbooks are used; but no slavish following of any one book is expected. Time is taken to compare conflicting statements of fact, and different interpretations. All available sources of information are used. The work extends through the freshman year, twice or three times a week.

I. GRECIAN HISTORY. The first term is given to Grecian history, some attention being paid to the Oriental nations, specially to those events which influenced in a noticeable manner subsequent European nations. Most of the time is occupied with a study of the conflicting cities and States of Greece, their advancement in oratory, literature and the fine arts.

II. ROMAN HISTORY. The second term is given to the history of Rome—her rise, rapid extension, wonderful vigor and extension of her power, her fall and final extinction, the survival of her better qualities and the gradual development of the nations of modern Europe.

III. ENGLISH HISTORY. During the third term attention is given to the history of England as the great exponent of human liberty, the rise and extension of her institutions, the settlement of her American Colonies, and the growth of her ideas and civilization on American soil.

HORTICULTURE.

PROFESSOR FOSTER.

EXPLANATION. Five lectures a week are given on this subject during the second and third terms of the junior year of the long Agricultural Course, and during the same terms of the second year in the short course. One term of five hours per week is required for the senior year in the Domestic Arts Course.

The work will be as follows:

I. FRUITS AND VEGETABLES. This consists of lectures and field work. It includes the selection and preparation of the soil, methods of propagation, seeding, grafting by the various methods, budding and layering, the pruning and care of orchards, picking, packing, marketing and preservation of fruits.

II. FORESTRY. This is a discussion of the propagation and care of forest trees best adapted to this region. Special attention is given to the effect of forests on the conservation of moisture and the effect of the latter on the agriculture of the country.

III. FLORICULTURE attempts to give instruction and practice in the care of house plants, and flower gardening.

IV. THE PROPAGATING HOUSE. One afternoon a week in the winter term is given to root grafting and other work in the propagating house.

MATHEMATICS.

PROFESSORS CANNON AND LANGTON.

ALGEBRA. A thorough drill in the elements of Algebra, with special attention to fractions, factoring, simultaneous equations, involution and evolution, and radical expressions, is given all freshmen during the first term every day, and every other day during the rest of the year.

PLANE GEOMETRY. Oral and written recitations in the elements of Plane Geometry are required of freshmen half the time during the winter and spring terms.

HIGHER ALGEBRA embraces a study of quadratic equations; simple indeterminate equations, inequalities, theory of exponents; logarithms; ratio and variation; series and the binomial and exponential theorems, during the full term of the sophomore year.

SOLID GEOMETRY involves recitations on the relation of lines and planes in space, area of surfaces; volume of solids; and the solution of practical problems. It comes in the second term sophomore year.

TRIGONOMETRY embraces a study of the use of logarithms in the solution of right and oblique triangles, and the deduction and use of trigonometric formulæ. Second and third term sophomore year.

SURVEYING occupies eleven weeks, two recitations a week, and four hours field practice a week. The solution of practical problems; the use of the compass and transit in the measurement of distance by triangulation and in land surveying, and the use of the level in establishing grades, are the most important features of the work.

DESCRIPTIVE GEOMETRY, is confined to the representation of problems, and the solution of problems relating to geometrical magnitudes in space.

CALCULUS. A general survey of the differential calculus is given together with solution of higher plane curves, and the ordinary methods of integration, following Osborne's text.

ANALYTICAL GEOMETRY embraces the reference of points and lines to co-ordinate axes and the deduction of equations of the straight line and curves of the conic sections.

DESCRIPTIVE GEOMETRY is made to cover orthographic projections and development; projections of plane and solid figures; curved surfaces and tangent planes; shades and

shadows; construction of maps; solution of problems relating to geometrical magnitudes.

Other courses in applied mathematics are described under Civil and Mechanical Engineering. The last four subjects are given to only Engineering students.

MECHANIC ARTS.

MR. MAYO.

I. TECHNICAL INSTRUCTION.

1. This embraces weekly lectures and recitations (1) running through the fall term of the freshman year, on the form and use of wood-working tools, and on the growth, felling and seasoning of timber; and (2) running through the spring term, on the construction and operation of wood-working machines.

2. Lectures are given twice a week during the winter term of the junior year, on the theory of pattern-making; and during the spring term on metal working appliances.

II. SHOP PRACTICE.

1. BENCH WORK IN WOOD includes exercises in planing, sawing, chiseling, rabbeting, plowing, splicing, mortising, tenoning, dove-tailing, framing, paneling, and general use of carpenter's tools.

2. WOOD TURNING covers all the principles of straight turning, face plate and chuck work.

3. IRON FORGING embraces drawing, bending, twisting, cutting, punching, upsetting, welding, and the use of flat-ters, fullers, swages, etc. These principles are applied in the making of a pair of tongs for use in shop. Other articles are made, such as andirons and ornamental gates, if time permits.

4. STEEL FORGING embraces the forging and tempering

of punches, cold chisels, drills, lathe and planer tools, springs, and the welding of steel to iron and iron to steel, annealing, case hardening, and coloring are also taught.

5. CABINET MAKING is the actual construction of articles of furniture, this being a practical application of the principles learned in bench and lathe work, with some little wood carving added.

6. WOOD-CARVING is given only to special students who have the necessary preparation.

The work numbered 1 and 2 occupies the full term of the freshman year, that marked 3 and 4, the winter term; that marked 5 and 6, the spring term. During the junior year shop work is continued as follows:

1. PATTERN MAKING, in the winter term, embraces a number of exercises in the construction of simple and built up patterns and core boxes.

2. VISE WORK, during the fall term, in iron, embraces chipping, filing, scraping, thread cutting, hand polishing, cutting of kep seats, riveting, brazing and soldering.

3. MACHINE WORK, in the opening term, embraces straight, paper and eccentric turning, thread cutting, face plate and chuck work, taper boring, use of boring bar, and milling on the engine lathe, surfacing, cutting of V, dove-tail and T grooves, and kep seating on planer, plain milling, grooving of taps, reamers, etc., gear cutting and grooving of twist drills on milling machines, drilling and boring in drill press, grinding and buffing on emery wheel.

METEOROLOGY.

MR. DRYDEN.

This is an optional course for junior and senior students, and includes an elementary study of air pressure, humidity, temperature, rainfall, evaporation, wind velocity, theory of storms, methods of forecasting, and a general study of the

United States Weather Service, with special reference to the relation of climate to health and to agriculture. The reading of the weather instruments in use at the College is made a part of the work.

MILITARY SCIENCE AND TACTICS,

LIEUTENANT STYER.

This course is in charge of an officer of the United States Army, detailed by the Secretary of War. The Government furnishes Springfield cadet rifles and equipment for infantry drill and two rifled-cannon for artillery instruction. A uniform of dark blue is worn by the cadets, the cost of which, including cap, is about fifteen dollars.

The attention of students intending to enter College is called to the fact that this uniform has been found more serviceable than a suit of civilian clothes of the same price, and they are requested to make arrangements so as to be able to order this uniform when they enter. On all occasions of drill, or when students are receiving any other military instruction, they are required to appear in uniform as prescribed by the College.

I. INFANTRY. This includes all the movements described in the drill regulations of the U. S. Army, from gymnastic instruction in the setting up exercises, the school of the soldier and bayonet exercise, to the drill by company and battalion; exercise in estimating distances by sign and also by sound; target practice with rifle, for which the government makes an annual allowance of ammunition; instruction in signalling with flag and in military telegraphy.

II. ARTILLERY. This embraces drill in the manual of the piece, and target practice when practicable.

III. THEORETICAL INSTRUCTION. During the winter months when outdoor drills are necessarily suspended, instruction is given by means of recitation from the drill regulations and by lectures on the elements of military

science. Daily from 11:40 to 12:10 a. m. Required of all students except juniors and seniors.

PHILOSOPHY.

PSYCHOLOGY is a study of the principal facts and theories of the science of mind, as an introduction to philosophy. The bearing of the subject on education is emphasized, and the student is made familiar with the great names in philosophy, and with the main doctrines of the different schools.

LOGIC. The science of reasoning is considered by textbook lessons from Hill's-Jevons's Logic. The chapters on Forms, Propositions, Syllogisms, Induction, Deduction, and Fallacies are studied and recited.

AESTHETICS. A series of lessons is given on the science of taste and the theories of the beautiful in art and nature. Reference to the history and development of the fine arts is frequently made, and the subject is elucidated by concrete examples and suggestive illustrations. Three times a week throughout the fall term.

PHYSICAL CULTURE.

MISS KENYON.

I. GYMNASTICS. Systematic exercises are given in free gymnastics, and in light gymnastics with Indian clubs, dumb-bells, swings, and weight machines.

II. LADIES' MILITARY DRILL. Regular infantry tactics with light rifles, occupies the same time with young women, as with young men.

PHYSICS.

PROFESSOR JENSEN.

I. **ELEMENTARY PHYSICS.** This is an introductory science course; in which the important laws of natural philosophy are stated and discussed. The current hypothesis of the constitution of matter is made the subject of especial study and all problems are referred back to it for their final explanations. Illustrations of the modern methods of scientific reasoning are given, and numerous practical problems, bearing on the subject in hand, are solved in and out of the class room.

II. **HEAT AND ELECTRICITY.** This course has been introduced especially for engineering students. The law of conservation of energy is made the fundamental principle, and the relations and effects of the various qualities are explained upon this basis. The mechanical equivalent of these forms of energy and the processes of transformation from one form to another and problems involving this principle are made a prominent feature.

III. **ELEMENTARY MECHANICS.** This involves an elementary consideration of the composition and resolution of forces, the measurement of forces, dynamics, hydrostatics, and pneumatics, supplemented with numerous problems selected from probable occurrences in the construction of buildings and machinery.

IV. **PHYSICAL LABORATORY** work includes measurements in heat and electricity.

V. **ADVANCED PHYSICS.** Heat, steam engine, steam boilers, electricity, elements of mechanism, and other courses in higher and applied physics are described under Civil and Mechanical Engineering.

POLITICAL SCIENCE.

PRESIDENT TANNER.

I. CIVIL GOVERNMENT AND CONSTITUTIONAL LAW. A study is made of the township, county, municipal, state, and national government, showing the evolution of the higher from the lower forms, with especial attention to the origin of each form. The present meaning and force of the national constitution is also considered. Fiske's *Civil Government* and Cooley's *Constitutional Law*.

II. POLITICAL ECONOMY. Three recitations a week from Laveleye's *Political Economy* are supplemented by illustrative statistics, explanations, and assigned readings. Original research and discussion are encouraged so as to give reality and interest to the consideration of the economic problems that now engage the highest thought of the country.

VETERINARY SCIENCE.

PROFESSOR FISCHER.

This subject embraces a series of lectures, which are delivered five times week a throughout a whole year in both courses in agriculture. No attempt is made to turn out veterinarians in any sense of the word, but simply to give the student of agriculture, such an elementary knowledge of veterinary medicine as will enable him to treat some of the commoner and simpler forms of disease, to avoid dangerous exposure of the animals under his care, and to recognize the importance of strict attention to the hygiene of his farm animals.

The following is a short synopsis of the work:

I. ANATOMY OF THE HORSE. This subject is studied in the following order during the fall term—Osseous system, muscular system, digestive system, respiratory system, urinary system, vascular system, nervous system, organs of generation.

II. MATERIA MEDICA. During the winter term general pathology, therapeutics, and surgery receive attention. During this term one or more horses are dissected.

III. SPECIAL PATHOLOGY and therapeutics (contagious and infectious disease) and principles of horse shoeing are discussed.

INSTRUMENTAL MUSIC.

MRS. GOODWIN.

Provision is made for instruction on the Piano, Reed Organ, and Guitar. There are four superior pianos and two cabinet organs in the College, and the music rooms will be used by pupils as heretofore. Beautiful guitars of sweet tone are made in the wood-work shops.

Details, as to time of lessons and conditions, will be announced at the commencement of each term.

That music is a great, perhaps the greatest, refiner of human nature is incontestible. Cruelty and brutality, generally the accompaniment of unmelodious races, become rarer as the musical feeling grows, and music is a predominant characteristic of refined and gentle natures. Undoubtedly, therefore, music may be made a potent factor in civilization, because the tenderest feelings of men, cultured or uncultured, are awakened by it. This result may be obtained more easily when the heart is fully enlisted and the faculties of the mind are fully exercised, thus making music one of the noblest factors in the education of the soul. It is intended to foster the taste for music among the students as fully as is consistent with the pursuit of their studies in other directions.

PREPARATORY DEPARTMENT.

Many of the settlements of Utah have barely passed their pioneer days. From such sections no great advance in education could be expected, and in some the schools are quite primitive. As a consequence many young men and women who have had to work hard with their parents in the varied operations of home making, find themselves without the educational start which their integrity merits. They have given their time to the material progress of the State, and now feel that they are entitled to a share of its intellectual advancement. In some of the thinly populated districts, schools are not regularly kept, and those that are, do not provide instruction generally adapted to the age and wants of the class referred to.

It therefore seems obvious, that until these young people pass the time they may devote to school, justice demands some provision for them in our higher educational institutions. The College maintains a department for such students and offers them the following studies:

SUB-FRESHMAN YEAR.

FIRST TERM.	SECOND TERM.	THIRD TERM.
Grammar5	Grammar.....5	Grammar and Composi- tion5
Arithmetic..... 5	Arithmetic.5	Arithmetic and Algebra 5
Geography 5	History 5	History..... 5
Reading2	Reading.....2	Reading and Declama- tion..3
AFTERNOON WORK.		
Penmanship..... .5	Penmanship.....5	Penmanship.....5
Drawing 5	Drawing.....5	Drawing.....5

WINTER COURSES.

I. FARMERS' COURSE. Beginning in January, a

course of special lectures on agricultural subjects is given for the benefit of any farmer that may wish to attend. The course includes agriculture, horticulture, entomology, botany, chemistry, veterinary science, and dairying, treated almost wholly from the practical side, and continuing one term, till the end of March.

A special circular describing this course will be mailed upon application.

II. WOMEN'S COURSE. A special course in sewing, household management, cooking, and such literary or scientific studies in addition thereto as the student is prepared to pursue, is offered to women during the winter term.

Special circulars describing this course are issued.

EXAMINATIONS.

Instructors keep a record of recitations, marked according to the decimal system. In making up final examination percentages, this is counted one-third, the mid-term examination one-third, and final examination for the term, one-third. But students who have been in a class only four-fifths, or less, of a term (or whose absences amount to one-fifth or more of the term) shall pass the whole subject upon examination. In all four year courses, an average standing of not less than 75 per cent., with no mark less than 60 per cent., will be required for graduation. Any student falling below 60 per cent. for a month, may be dropped from the class.

GRADUATION.

The degree of Bachelor of Science is conferred upon completion of any of the four year courses. A certificate is granted for the completion of any short course.

COLLEGE CHARGES.

Tuition is free. An entrance fee of \$5 is charged for each year of the college course; for a single term \$2.50. The privileges of the library, museum, etc., are free to students. In the chemical laboratory, work shops and cooking rooms, students are charged for the cost of the materials actually used by them in their exercises, the cost varying from \$2 to \$4 per year in each industrial or laboratory course.

Certificates of graduation in short course, \$2.50.

Bachelor of Science diploma, \$5.

MUSEUM.

DR. BREWER, Curator.

THE MUSEUM contains a considerable number of specimens illustrative of Geology and Palæontology, Vertebrate and Invertebrate Zoology, and Mineralogy; also about four thousand five hundred species of the Rocky Mountain flora, and a large number of the woods of the United States. There is also an extensive collection of grain representing the produce of Utah and other States. A small collection of Indian and Polynesian products and curiosities has been made.

Donations to the museum will be highly appreciated.

LIBRARY.

MRS. GOODWIN, Librarian.

The general library contains about three thousand volumes and several hundred pamphlets. The subjects covered are general literature, including poetry and fiction, travel, history, biography and criticism; political economy, sociology, metaphysics, general science, and such of the special sciences as are included in the courses of the several departments. The Professor of English Literature, whose private library contains about two thousand eight hundred volumes, allows to advanced students in his own classes, the

privilege of the use of his library under his direction. Some of the other professors also accord access to their private libraries as occasion may require. A large addition of books will be made to the general library during the coming year.

The library and reading room are open to the students and to the general public every College day throughout the year.

The list of periodicals placed in the reading room upon subscription is as follows:

LITERARY MAGAZINES.

Atlantic Monthly.	McClure's Magazine.
Century.	Munsey's Magazine.
Cosmopolitan.	Nation.
Critic.	North American Review.
Edinburgh Review.	Outlook.
Education.	Peterson's Magazine.
Forum.	Puck.
Harper's Bazar.	Review of Reviews.
Harper's Monthly.	Scribner's Magazine.
Harper's Weekly.	Student's Journal.
Journal of Education.	University Chronicle.
Judge.	University Magazine.
Ladies' Home Journal.	Youth's Companion.
Literary World.	

SCIENTIFIC AND TECHNICAL MAGAZINES.

American Machinist.	Sanitarian.
American Journal of Politics	Science.
American Naturalist.	Scientific American.
Art Education.	Scientific American—Build- ing Edition.
Delineator.	Scientific American Supple- ment.
Engineering Magazine.	Studies in Historical and Political Science.
Good Housekeeping.	Table Talk.
Housekeeper.	Transactions of American Society of Mechanical En- gineering.
Journal of American Folk Lore.	Veterinary Magazine.
Journal of Association of Engineering Societies.	Werner's Voice Magazine.
Le Bon Temps.	
Machinery.	
Nature.	
Popular Science Monthly.	

AGRICULTURAL MAGAZINES.

Agricultural Science.	Garden and Forest.
American Bee Journal.	Irrigation Age.
American Gardening.	Journal of Horticulture.
Breeder's Gazette.	Pacific Rural Press.
Country Gentleman.	Poultry World.
Farm Poultry.	

NEWSPAPERS AND MISCELLANEOUS PERIODICALS.

The following is a list of periodicals received at the Experiment Station library, through the courtesy and liberality of the publishers, in exchange for the publications of the Station. Free access to these and other publications is allowed to college students and to the general public. The list comprises nearly all the best agricultural papers of the country, and in connection with the college list of periodicals, constitutes an excellent current library of agriculture and related sciences.

Agricultural Epitomist.	Indiana Farmer.
Agriculturist.	Industrial American.
American Agriculturist,	Industrialist.
Middle and Western	Irrigation Age.
editions.	Journal of Board of Agriculture, London, England.
American Creamery.	Journal of Agriculture.
American Cultivator.	Jersey Bulletin.
American Fertilizer.	Kansas Farmer.
American Gardening.	Live Stock Indicator.
American Grange Bulletin.	Live Stock Report.
American Horticulturist.	L'Industrie Laitiere, Paris, France.
American Sheep Breeder and Wool Grower.	Louisiana Planter.
American Swineherd.	Milch Zeitung, Bremen, Germany.
Baltimore Weekly Sun.	Mirror and Farmer.
Bell's Weekly Messenger.	Montana Fruit Grower.
California Cultivator and Poultry Keeper.	Nebraska Farmer.
California Fruit Grower.	Neue Zeitschrift fur Rubenzucker-Industrie, Berlin, Germany.
Chronique Agricole, Lausanne, Switzerland.	
Church and Farm.	

Clover Leaf.	New England Farmer.
Colman's Rural World.	New England Florist.
Commercial Agriculture.	Ohio Farmer.
Connecticut Farmer.	Orange Judd Farmer.
Creamery Journal.	Pacific Coast Dairyman.
Cultivator.	Practical Farmer.
Daily Public Ledger, Philadelphia.	Prarie Farmer.
Dairy The, London, England.	Revue Internationale des Falsifications, Amsterdam, Holland.
Dairy World.	Rocky Mountain Agriculturist.
Dakota Farmer.	Rural Canadian, Toronto, Ont., Canada.
Elgin Dairy Report.	Rural Life.
Farmers' Advocate.	Rural Northwest.
Farm, Field, and Fireside.	Scottish Farmer, Glasgow, Scotland.
Farm and Fireside.	Southern Cultivator.
Farmers' Guide.	Stockman and Farmer.
Farm and Home.	Successful Farmer.
Farmer's Home.	Sugar Beet.
Farm Journal.	Texas Farm and Ranch.
Farmer's Call.	Ulster Agriculturist.
Farmer's Magazine.	Belfast, Ireland.
Farming, Toronto, Ont., Canada.	Wallace's Farmer.
Farm News.	Weekly Call, San Francisco.
Farm and Orchard.	Weekly Tribune, New York.
Farmers' Review.	Western Agriculturist and Live Stock Journal.
Farm, Stock, and Home.	Western Rural.
Field and Farm.	Wisconsin Agriculturist.
Gardening.	Wool, Mutton, and Pork.
Grange Visitor.	World, thrice a week.
Hoard's Dairyman.	
Holstein Friesian Register.	
Hospodar.	

The following Utah newspapers are also sent by the courtesy of the publishers:

Advocate, Price.	Item, American Fork.
Advocate, Richfield.	Journal, Logan.
American, Spanish Fork.	Mercury, Mercur.
Argus, Salt Lake City.	Messenger, Manti.
Banner, Lehi.	Miner, Tintic.
Beobachter, Salt Lake City.	News, Beaver.
Blade, Deseret.	Press, Ogden.
Box Elder News, Brigham.	Progress, Fillmore.

Bugler, Brigham.	Pyramid, Mount Pleasant.
Bulletin, Bingham.	Record, Cedar City.
Clipper, Farmington.	Record, Park City.
Democrat, Eureka.	Republic, Nephi.
Deseret News, Salt Lake City.	Republican, Logan.
Dispatch, Provo.	Review, Ogden.
Enterprise, Ephraim.	Sentinel, Manti.
Enquirer, Provo.	Southern Censor, Richfield.
Express, Vernal.	Standard, Ogden.
Globe, Payson.	Times, Coalville.
Herald, Salt Lake City.	Transcript, Tooele.
Independent, Sandy.	Tribune, Salt Lake City.
Independent, Springfield.	Utah Patriot, Park City.
Inter Mountain Advocate, Salt Lake City.	Utonian, Provo.
	Wasatch Wave, Heber.
	Woman's Exponent.

BOARDING HOUSE.

The College Boarding House will be under the supervision of Mrs. J. M. Tanner, and students will be directly responsible to the President of the College for their conduct. Two students usually occupy one room, the cost to each for rent, electric light and board being from \$2.50 to \$3.25 a week. Students are required to furnish bedding and carpet.

WEATHER FORECASTS.

The Experiment Station receives the telegraphic weather forecasts from the forecast official of the Department of Agriculture located at San Francisco. The forecasts are telegraphed each day (Sundays and holidays excepted) at government expense. The signal flags are displayed from the flagpole of the College in full view of the valley below. These forecasts or warnings are of great value to the farming community. In 1893 the per centage of verification of the forecasts for the Pacific Coast division was 83.7. For Utah, which is part of this division, the per centage was

likewise 83.7. Great value is placed upon these forecasts by the Department of Agriculture at Washington. From their timely warnings much property is saved both on sea and land. The Department considers that \$10,000,000 is a conservative estimate of the value of property saved in 1895. Doubtless some means will be devised in the near future whereby these forecasts will be made more accessible to the farming community. An explanation of the flag signals is shown on the last page.

STUDENTS.

GRADUATES, 1896

WITH THE DEGREE OF BACHELOR OF SCIENCE:

Langton, Willard S,	Logan
Larsen, Christian	"
McLaughlin, Walter W	"
Merrill, Amos N	Richmond
Merrill, Lorin A	"
Rhead, Josiah L	Coveville
Thomson, Joseph R	Richmond

WITH CERTIFICATES FOR THE COMPLETION OF THE SHORT COMMERCIAL COURSE:

Carver, Lewis H.	Plain City
Gibson, Wesley	Smithfield

SENIORS.

Larsen, Christian	Logan
McLaughlin, Walter W	"
Merrill, Amos N	Richmond
Merrill, Lorin A	"
Rhead, Josiah L	Coveville
Thomson, Joseph R	Richmond

JUNIORS.

Anderson, John A	Ephraim
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Bankhead, John	Wellsville
Barker, Olla	Ogden
Barrett, Arthur C	Logan
Harris, Joel Judkins	Ogden
Hart, Alfred Augustus	Thomas Fork, Idaho
Hart, Hermoine	" " "
Humphreys, Thomas Hyrum	Paris, "
Jensen, Charles A	Hyrum
Maughan, Rachel	Petersboro
Mendenhall, John Fenmore	Springville
Pond, Charles	Lewiston
Smith, Mamie	Preston, Idaho
Sponberg, Anna	Franklin, "
Stewart, John	Plain City

SOPHOMORES.

Allen, Mary Ida	Logan
Anderson, Mamie	"
Atkinson, Frederick Henry	Dayton, Idaho
Baker, John Simon	Mendon
Beers, Annie	Logan
Beers, William Duke	"
Bullen, Mable	Richmond
Bybee, Mary Jane	Lewiston
Carver, Lewis Henry	Plain City
Eames, Ezra	Logan
Fernette, Frank	Park City
Gibson, Wesley	Smithfield
Hansen, N	Logan
Hatch, Vivian E	Ogden
Hendricks, George Gideon	Richmond
Irvine, Alexander Ray	Logan
Peterson, Joseph H	Huntsville
Peterson, William	Bloomington, Idaho
Smith, Parley	Dewiston
Tarbet, Annie	Logan
Toolson, George A	Smithfield

FRESHMEN.

Andrus, Alexander B	St. George
Andrus, Gideon La Fayette	"
Benedict, Beatrice	Logan
Bernhisel, Annie	Lewiston
Brossard, Louis Alphonse	Oxford, Idaho
Budge, Frank	Paris, "
Bullen, Ethel	Richmond
Cannon, Mark	Salt Lake City
Chambers, Thomas Henry	Smithfield
Christensen, Moses	Newton
Christian, Guy	Beaver
Condon, Leslie Guy	Park City
Curtis, Harry Benson	Blackfoot, Idaho
Dalton, Marion	Willard
Davenport, Helen	Wood River, Oregon
Evans, Frederick Charles	Thomas Fork, Idaho
Evans, Joseph Alvan	" " "
Fjelstead, Estella	Logan
Funk, James William	Richmond
Gee, William Erastus	Lewiston
Geertson, Leonora	Salmon City, Idaho
Geertson, Lillian	" " "
Gordon, Robert John	Meadowville
Gibson, Ella Edna	Smithfield
Griffin, Ute Elon	Richmond
Hanson, August J	Logan
Hanson, Peter C	Soda Springs, Idaho
Hart, James Richard	Thomas Fork, Idaho
Hayball, George Ole	Logan
Hendricks, Maria Elizabeth	Richmond
Hess, John Alma	Georgetown, Idaho
Hoff, Beatrice	" "
Hoganson, Christian	Newton
Hoggan, George Walter	Providence
Holbrook, Brigham S	Bountiful
Homer, Rose	Oxford, Idaho
Homer, William Harrison	" "

Humphreys, Charles Richard	Paris, Idaho
Huntsman, Sarah	Wellsville
Jensen, Anton Ephraim	Mantua
Jensen, Joseph William	Newton
Jorgenson, Moses	Logan
Larsen, Eliza	Collinston
Larsen, Joseph J	Newton
Lovegren, Carrie	Mount Pleasant
McAlister, Will Lucius	Logan
Martineau, Theodore	Juarez, Mexico
Maughan, Elizabeth	Peterboro
Merrill, Fred Whittemore	Richmond
Merrill, Lucile Elcina	"
Miner, Idaliah	Logan
Mitchener, Myrtie	Stockton
Moffat, Enid	Salt Lake City
Molen, William	Menan, Idaho
Morrell, Joseph Rowland	Logan
Nelson, Frank Orlando	Richmond
Nelson, Olaf Andrews	Logan
Nibley, Alexander	Baker City, Oregon
Peterson, Carrie Amelia	Ephraim
Porter, Moses Ensign	Riverside
Rager, William Henry	Thistle
Redford, Abraham B.	Beaver
Rice, Nana	Logan
Roberts, Edgar Thomas	Afton, Wyoming
Roberts, John James	Paradise
Simmonds, William Walter	Trenton
Skeen, Jedediah	Plain City
Smith, Absalom Carlos	Lewiston
Sorenson, Theona	Huntsville
Sparks, Edward Hamilton	Nephi
Spencer, Leonora	Paris, Idaho
Staker, Edmund Merchant	Rockport
Stocks, James Halley	Lewiston
Stover, Arthur Patterson	Logan
Tarbet, Willard Davis	"

Taylor, George Francis	Plain City
Thatcher, Ollie	Logan
Thatcher, Roy Davis	"
Thomas, James Clabourne	Bloomington, Idaho
Turner, Amos Howarth	Murray
Watson, William	Logan
Webb, William	Fillmore
Wheatley, Edvin Calvin	Honeyville
Williamson, Orson	St. Charles, Idaho
Woodward, Jennie	Franklin, "
Woozley, Pearl	Malad, "
Wright, Measie	Nephi

SUB-FRESHMEN.

Allen, Elijah W	Coveville
Allen, William Arthur	Lewiston
Aller, Leslie	Lewiston
Anderson, Francis Edward	Salt Lake City
Anderson George Albert	Logan
Anderson, Niels Peter	"
Andrews, David	"
Andrews, Thamizon	St. George
Archibald, Charles S	Clarkston
Ash, Joseph Willard	Beaver
Austin, Arta Chase	Liberty, Idaho
Bagley, Pernecy May	Montpelier, "
Baird, Warner	Lewiston
Baker, Willard	Mendon
Ballam, Fred Thomas	Logan
Ballam, Florence	"
Ballif, Joseph Fenelon	"
Barnes, Elias J	Salt Lake City
Barson, Hyrum	Clarkston
Barson, Denny B	"
Barson, May Eliza	"
Bateman, George F	Bloomington, Idaho
Beck, Samuel	Salt Lake City

Beckstead, Gordon Eli	Oxford, Idaho
Beckstead, Samuel Leonidas	" "
Birdneau Leo William	Logan
Bindrup, Nephi	College Ward
Bithell, Joseph James	Salt Lake City
Blythe, Charles	" " "
Barker, Amy	View
Boyle, Clare Julie	Oxford, Idaho
Boyle, Sarah	" "
Broberg, John Carl	Logan
Brown, James Ferguson	Liberty, Idaho
Brown, Julia	" "
Brown, Lucy	Providence
Buehler, Louisa	Logan
Bullen, Pearl	Richmond
Bullock, Winnie	Providence
Bybee, Harriet Emmaline	Lewiston
Byrne, Louis	Lyman, Idaho
Campbell, Ezra Taft	Providence
Candland, Lawrence H	Uintah
Card, Nora	La Belle, Idaho
Carlisle, Benjamin	Logan
Carlson, Ezra	"
Challis, Arthur Daniel	Franklin, Idaho
Cheney, Clarence Elijah	Laketown
Cheney, Delonza	Lewiston
Christian, Marion L	Beaver
Christensen, Annie	Bear River City
Christensen, Fred	Richmond
Christensen, John	Ephraim
Christensen, Lina	Bear River City
Christensen, Lizzie Carrie	Newton
Clark, Israel Justice	Benson
Clark, John Edmund	"
Clark, Vaughan Howard	Salt Lake City
Coleman, Andrew	Tooele
Cooley, Marcus Robert	Newton
Cooper, Blanche	McCammon, Idaho

Cornish, Hattie	Coveville
Crandall, William Vernon	Oxford, Idaho
Crockett, Ella	Logan
Crockett, Fannie	"
Crockett, June	"
Curtis, Frank	"
Curtis, Lillie May	"
Dahle, Albert Henry	"
Dalton, Guy A	Manti
Davenport, Franklin R	Wood River, Oregon
Davis, Emma	Soda Springs, Idaho
Davis, Lila Ann	" " "
Davis, Taylor	" " "
Dudley, May Eliza	Clifton, "
Duffin, Edward	Paris, "
Edlefson, May	Logan
Egan, William Fister	Bountiful
Eliason, Phoebe	Logan
Eliason, William	Moroni
Elwell, Isaac Jr.,	Logan
Ericksen, Charles Alfred	"
Ewing, Lester	Smithfield
Fallon, Louisa Kate	Henry's Fork, Wyoming
Farr, Aquilla	Logan
Farr, Winslow	"
Fife, Finis	Providence
Gibbons, Ann Elizabeth	Garden City
Gibbons, Joseph Weston	" "
Gleason, Alvonis Horace	Garland
Gleason, Meady	Sunset
Goldberg, Orson S	Paradise
Gorton, Henry Clay	Soda Springs, Idaho
Greaves, Elizabeth	Ephraim
Hanks, Frank Henry	Logan
Hansen, Charles Willard	Logan
Hansen, Hans C	Logan
Hansen, Christian James	"
Hansen, James Edward	Providence

Hansen, Joseph Henry	Logan
Hansen, Nephi Peter Niels	Newton
Hansen, Selma Hortense	Smithfield
Hansen, William	Clarkston
Harris, Carrie	Beaver, Idaho
Harris, Emma	Richmond
Hartvigsen, Annie	Hyrum
Henderson, Mamie	Oneida, Idaho
Hendricks, John William	Richmond
Hendricks, William Warren	"
Herd, James	Franklin, Idaho
Hill, Harriett	Rexburg, "
Hodge, Elizabeth	Paris, "
Hogensen, Stena	Newton
Hoggan, Geo. R.	Manti
Holladay, Lucy Ann	Smithfield
Holmes, Thomas Henry	Murray
Homer, Ida May	Oxford, Idaho
Horsley, Fiby	Soda Springs, "
Horsley, Harry	" " "
Hutteballe, Hans Christian	Logan
Izatt, Jeannette	"
Jacobson, Alma Gustave	"
Jacobson, Carl Aaron	"
Jenkins, Lewis	Newton
Jenkins, Ruth	"
Jensen, Anton	Mantua
Jensen, Anton Henry	Preston, Idaho
Jensen, James P.	Bear River City
Jensen, John Henry	St. Charles, Idaho
Jensen, Matilda	Logan
Jensen, Minnie	Newton
Jensen, Peter Simon	Preston, Idaho
Jensen, William	Mantua
Johnson, John Alma	Logan
Jones, James Thomas	Malad, Idaho
Jones, Mary Ann	Logan
Jones, Thomas Daniel	Malad, Idaho

Kent, Lillie Maud.....	Logan
Kirkwood, Fred	Provo
Knowles, Ernest	Logan
Krogue, Gertrude Emily.....	Bloomington, Idaho
Krogue, Nelson Louis	" "
Larsen, Andrew N.....	Logan
Larsen, Christian	"
Larsen, Christian Albert.....	"
Larsen, David	Collinston
Larsen, John Christian.....	Coveville
Larsen, John Willard	Collinston
Larsen, Lorenzo William	Preston, Idaho
Larsen, Mary A	Newton
Larsen, Nellie.....	Logan
Larsen, Nettie	"
Larsen, Retta M.....	Newton
Larson, Hulda.....	Logan
Leavitt, Edward	Lewiston
Leichter, John Adam	Park City
Lundsteen, Niels.....	Levan
Madson, Victor Emanuel.....	Brigham City
Marler, Lorin William	Lewiston
Marler, May Amanda.....	"
Mathews, Hopkins Charles	Providence
Máthis, James Samuel.....	Harmony
Mathis, John Arnold.....	"
Matson, Amanda Christine.....	Logan
May, Richard Charles.....	Calls Fort
McAlister, Maima.....	Logan
McGarry, James	Beaver
McGowan, George Leonard	Challis
McNiel, Ellen	Logan
Medford, John Freeman	Gentile Valley, Idaho
Merrell, John Francis	Brigham City
Merrill, Mary Jane.....	Bermington, Idaho
Merrill, Owin Preston.....	Franklin, "
Miles, George Edwin	Smithfield
Mitchell, Alfred Hezekiah.....	Logan

Morehead, Junie Harrison	Smithfield
Morgan, George Lester	Paris, Idaho
Morgan, John Richard	Willard
Morgan, Pauline	"
Morgan, Robert Henry	"
Morgan, Samuel Perry	Franklin, Idaho
Mortenson, Joseph	Brigham City
Moss, Alexander	Bountiful
Mulkey, Marion	Salmon, Idaho
Naef, Elsie	Providence
Napper, Charles Edward	Logan
Needham, Sylvan Eugene	"
Neely, Parley Hughes	Kamas
Neilson, Neils Peter	Logan
Nelson, Joseph	Mantua
Nelson, William	Newton
Newman, Stephen Bird	Salt Lake City
Nibley, Osmond	Baker City, Oregon
Nilson, Ella	Smithfield
Oakden, Clarence	St. Anthony, Idaho
Olsen, Alma	Newton
Olsen, Henry Christian	Logan
Olsen, Charles Peter	"
Ormsby, Mable Jane	"
Orr, Joseph	Liberty, Idaho
Ottoson, Nephi	Manti
Packer, Edson Whipple	Riverside, Idaho
Paine, Vennettia	Georgetown, "
Palmer, Centennial Edward	Plain City
Parker, David	St. Anthony, Idaho
Parkinson, Elizabeth	Logan
Parkinson, William Brigham, Jr	"
Paull, Charlotte E	"
Paull, Gertrude	"
Pearce, Charles William	Paradise
Pedersen, Antone	Provo
Peterson, Andrew	Logan
Peterson, Andrew	Manti

Peterson, Charles Peter	Richfield
Peterson, Edward Larsen	Petersboro
Petty, Martha Jane	Richmond
Petty, William Henry	"
Philips, Josephine Maude	Morgan
Picore, Frank	Snowville
Porter, Florence	Logan
Powers, Alice Diantha	Smithfield
Pugmire, Leroy	St. Charles, Idaho
Quayle, Nellie	Montpelier, "
Ralph, Fred Charles	Hyrum
Redd, Fanzine Ellen	New Harmony
Redd, Mary Catherine	Harmony
Redford, John	Beaver Canyon, Idaho
Rice, Arvin R	Egin, "
Rice, Margaret	Providence
Richardson, Susan Eliza	Smithfield
Ricks, Harvey	Logan
Ririe, Joseph	Eden
Robinson, Frank	Richmond
Robinson, George	Franklin, Idaho
Rogers, Samuel Russell	Lewiston
Rowe, Lorenzo William	Salt Lake City
Rowlins, Alfonso	Lewiston
Saucier, Fred Ervin	Salt Lake City
Savage, Ray T	" " "
Schuler, Emil	" " "
Sermon, John Atwood	Murray
Shipley, Orren Smith	Paradise
Shrives, Harry Edwin	Franklin, Idaho
Slater, James Roy	Slaterville
Smith, Anna Elaine	Providence
Smith, Cuzandra	Smithfield
Smith, David	Logan
Smith, Ephraim	Sandy
Smith, Isaac S.	Logan
Smith, Marie Jane	Lewiston
Smith, Sylvia	Smithfield

Sorenson, Alice Jennette	Georgetown, Idaho
Spahn, Carl	Salmon City, "
Spencer, George Boardman Jr	Paris "
Spencer, Joseph Horne	Paris, Idaho
Steed, Albert Arthur	Ogden
Stephens, Thomas Nephi	Bennington, Idaho
Stevens, Leroy Alfred	Holden
Stewart, Carrie Julia	Logan
Stewart, Ida May	"
Stoddard, Jessie	"
Stowell, W. B	"
Sutton, Ernest	Salt Lake City
Sutton, Margaret	Paris, Idaho
Sweeten, Robert	Mendon
Taggart, Frederick	Morgan
Taylor, Frank William	Willard
Telford, John	Richmond
Tenny, Levi Stewart	Colonia Diaz, Mexico
Tenny, Phoebe	" " "
Terry, Dora Marie	Richmond
Thatcher, Aaron D	Logan
Thatcher, Frank Davis	"
Thatcher, Orson Pratt	"
Thatcher, Preston	"
Thomas, Burton Lewis	Bloomington, Idaho
Thomas, Fenretta	Smithfield
Thomas, Howard Lafayette	"
Thomas, John Owens	Malad, Idaho
Thomas, Joseph Richard	Richmond
Theurer, Ettie	Providence
Tippets, Abigail Eliza	Bennington, Idaho
Titensor, Rosa	Coveville
Toolson, George A	Smithfield
Trumbull, Thomas O	Custer, Idaho
Turner, Charles Henry	Farmington
Turner, Fred H	Logan
Turner, Mary Ann	Logan
Van Leuven, Lucinda	Fairview, Idaho

Van Leuven, Nellie.....	Lewiston
Waddoups, Thomas Anson.....	Bountiful
Waite, William	"
Walworth, James Thomas.....	Snowville
Ward, Rachel Adeline	Willard
Warner, William David.....	Uintah
Watson, Alma Grant.....	Bingham Canyon
Welker, Clara.....	Bennington, Idaho
Wendleboe, Violet Dortha	Logan
Weston, Sarah.....	Laketown
Wheatley, John Gibbs.....	Honeyville
Whitaker, Edmund	Centerville
Wilbur, Jesse M	Eden
Wilbur, O. K.....	Eden
Wilkins, George Edgar.....	Peoa
Wilson, Amy Elizabeth.....	Logan
Wilson, C. C.....	Beaver City
Wilson, Richard H	Eden
Wiscom, Orson Charles.....	Liberty, Idaho
Woolf, Clare	Mount Sterling
Worsdell, Archibald	Logan
Wright, Reginald.....	Ogden
Young, Cora	Salt Lake City
Young, James Taylor.....	Salt Lake City
Young, Wilford Vancott	Salt Lake City

SPECIAL STUDENTS.

Cafferty, Carrie	Logan
Cheney, Frank	Brigham
Clemens, Alice Isabella	Logan
Fjelstead, Annie	Logan
Flueckiger, Mary Eliza	Providence
Foss, Ezra Carter Jr	Logan
Hansen, Niels Peter.....	Logan
Hanson, George David.....	Providence
Hardy, Edward Augustus.....	Fielding
Hubbard, Jennie.....	Logan
Hyde, Emma Loraine	Logan

Izatt, Jeanette W.....	Logan
Katsunuma, Tomizo J	Tokio, Japan
Kearl, Alfred	Laketown
Kilgore, Dora	Logan
Kirkbride, James William	Smithfield
Larsen, Nephi A.....	Preston, Idaho
Larsen, Noah.....	College Ward
Lewis, Mary.....	Logan
Lloyd Annie.....	Logan
Macfarlane, John M.....	St. George
McLean, Andrew.....	Park City
Medford, Albert.....	Gentile Valley, Idaho
Nuhn, Vilate.....	Willard
Olsen, Peter.....	Logan
Robinson, John Edward	Franklin, Idaho
Rosengren, John H.....	Logan
Scoles, Marian.....	"
Smith, Mary S	"
Stewart, Isaac.....	"
Widtsoe, Osborne	"

WINTER AGRICULTURAL COURSE.

Bell, George A	Logan
Carver, Albert J	Eden
Griffin, Walter	Newton, Idaho
Hansen, Willard.....	Collinston
Johnson, Cenus	Newton
Lafount, Harold.....	Logan
Larsen, Joseph.....	Newton
Ormiston, Robert	Logan
Peterson, Sern	Newton
Scott, W. R	Sandy
Sessions, Perry G	Logan
Sessions, Scott H	"
Snook, John.....	Salmon City, Idaho
Wood, James	Logan

WINTER DOMESTIC ARTS COURSE.

Anderson, Della	Grantsville
Batt, Eliza	Logan
Benson, Louise	"
Hansen, Emma	"
Hansen, Mary	"
Harding, Fanny Janet	Fielding
Hatch, Della	Franklin, Idaho
Hobbs, Mabel	" "
Hobbs, Rosa	" "
Kent, Mary	Logan
Langton, Nellie	"
Larsen, Victoria	Collinston
Schaub, Annie J.	Logan
Thatcher, Harriet P.	Logan

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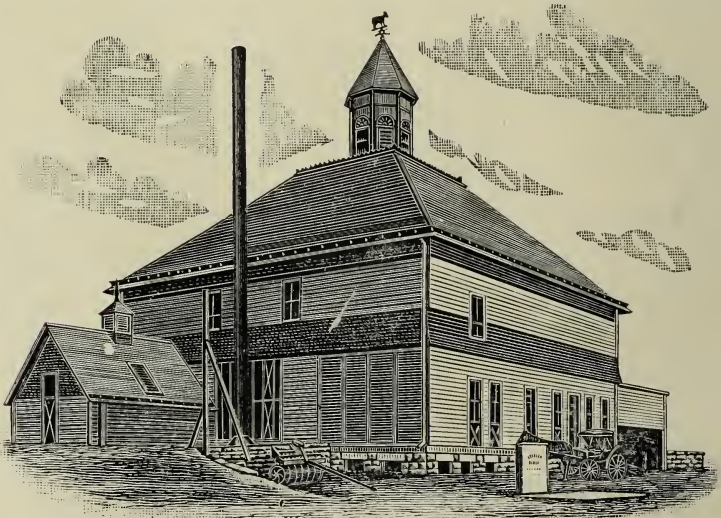
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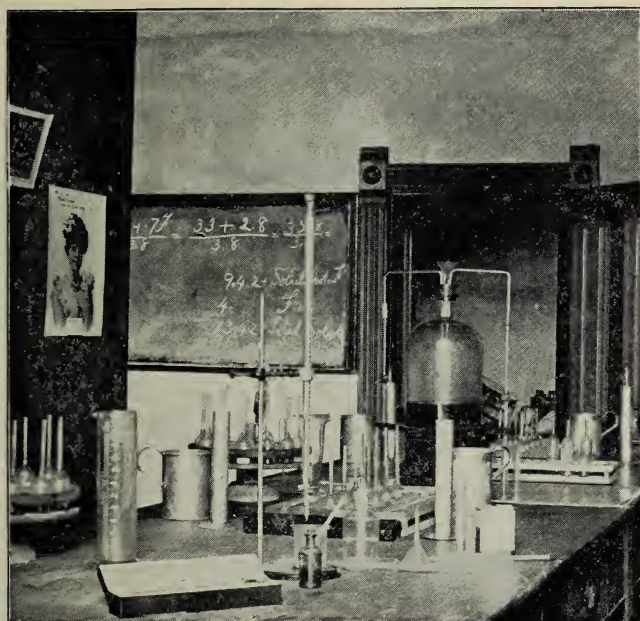
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MODEL BARN.



DAIRY.



MILK TESTING ROOM.



BIOLOGICAL LABORATORY.



BACTERIOLOGICAL LABORATORY.



ANATOMICAL LABORATORY.



INTERIOR OF GREEN HOUSE.



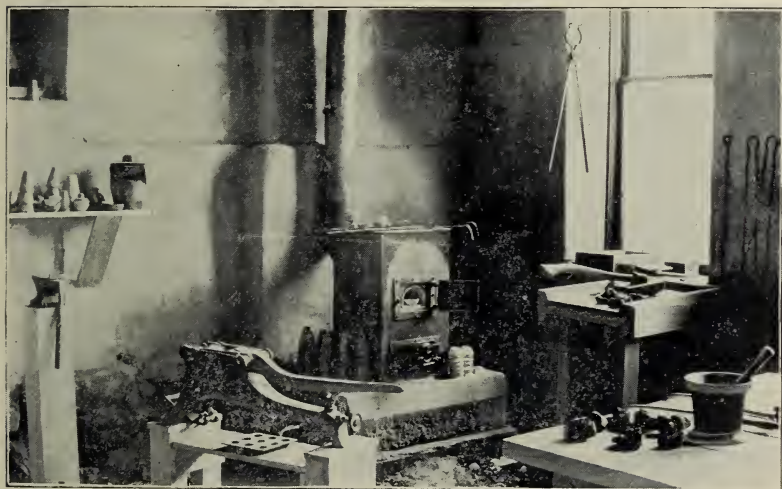
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MINERALOGICAL LABORATORY.



ASSAYING ROOM.



KITCHEN.



SEWING ROOM.



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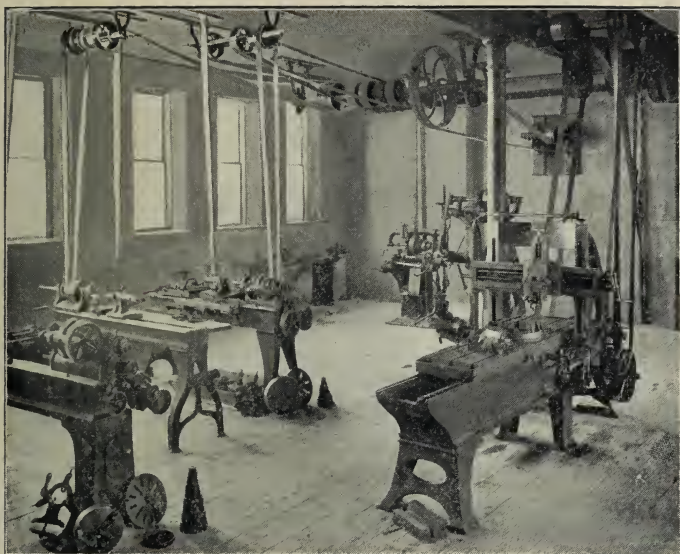
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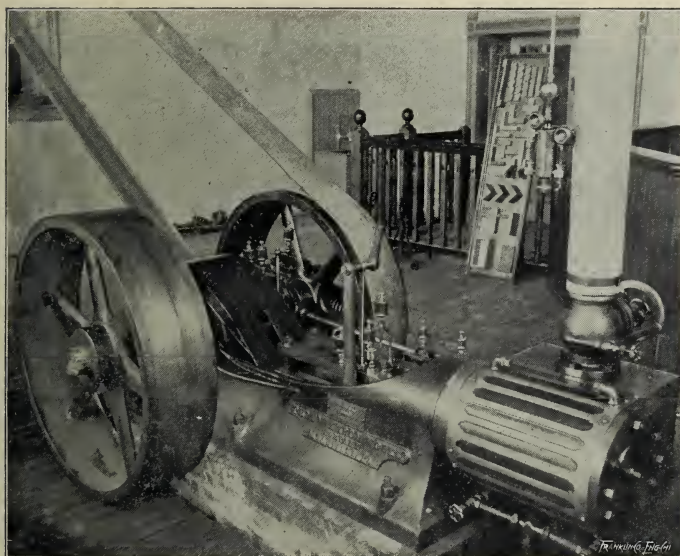
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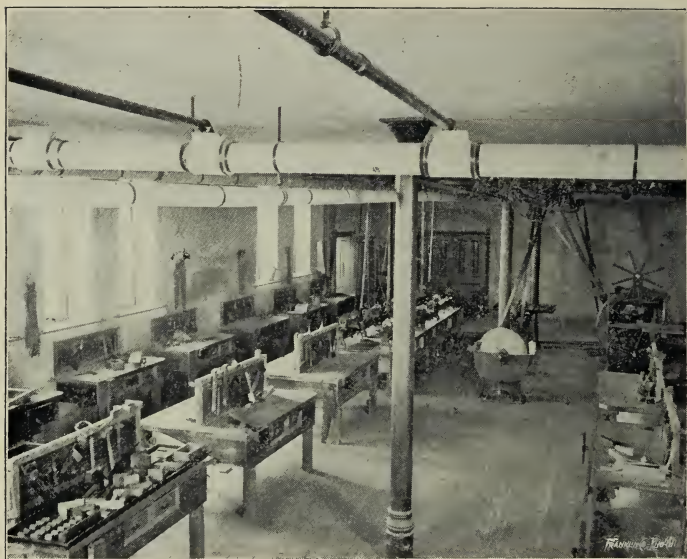
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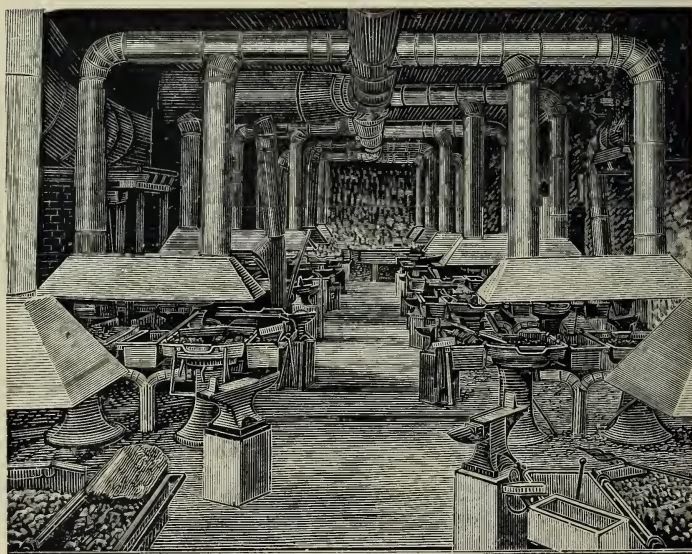
MACHINE SHOP.



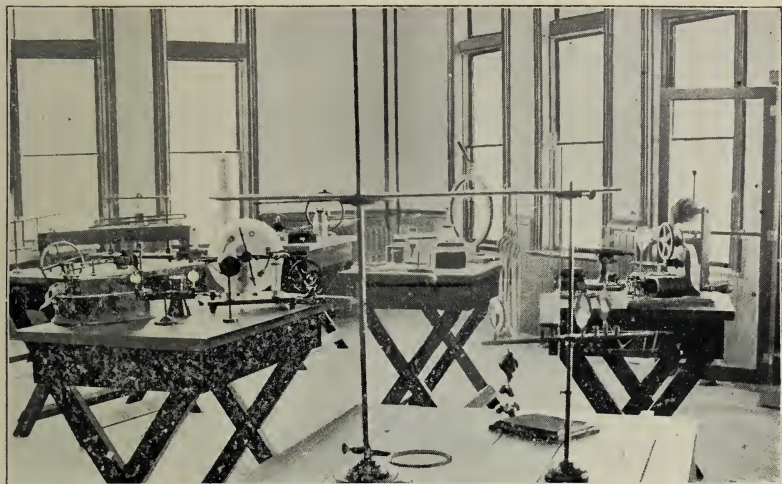
ENGINE ROOM.



WOOD WORKING SHOP.



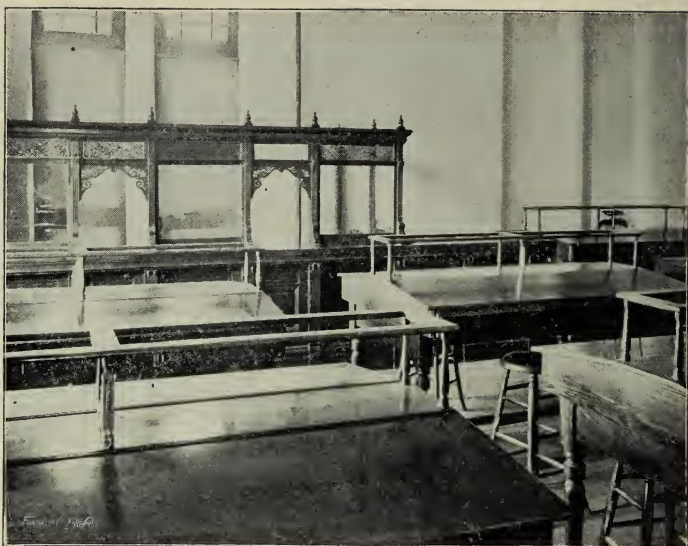
BLACKSMITH SHOP.



PHYSICAL LABORATORY.



FIELD WORK IN SURVEYING.



COMMERCIAL ROOM.



TYPEWRITING AND STENOGRAPHY.



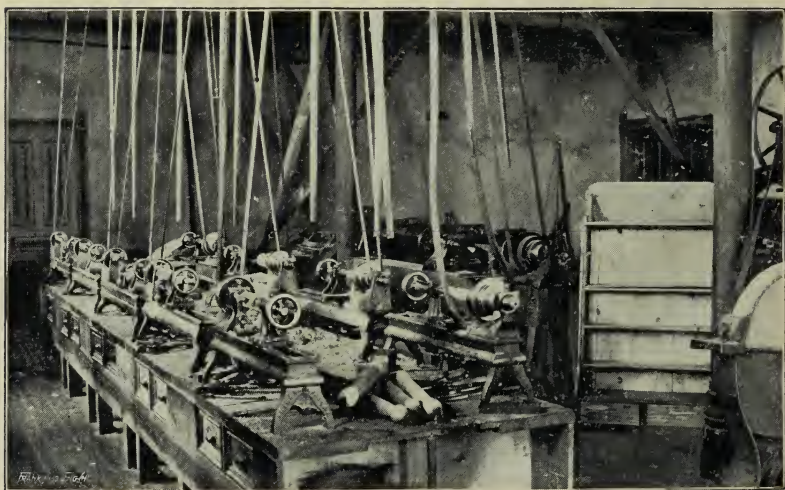
MUSEUM.



MECHANICAL DRAWING ROOM.



SAMPLES OF WOOD WORK.

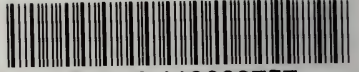


WOOD TURNING SHOP.





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